

**Testing the application of a community resilience assessment:
a case study of the Town of Huntsville, Ontario**

by

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A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Environmental Studies
in
Environment and Resource Studies

Waterloo, Ontario, Canada, 2011

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

This research explored the application of a resilience assessment (RA) template in an Ontario community to facilitate sustainable community planning. Research and application of sustainable community planning that incorporates management of social and ecological resilience is relatively young territory that requires improved understanding and extension. The research goals were to critically examine the performance of the process used to perform the RA. This inquiry was considered a knowledge-generating evaluation that combined applied research and evaluation research to contribute to theoretical understanding and action. The RA template was field-tested using a single in-depth case study - the Town of Huntsville, Ontario. A mixture of qualitative methods was used to pilot and evaluate the RA, including: key informant interviews, online group discussions, focus groups, and secondary literature review. The process used to perform the RA was evaluated against four criteria that focused on the adequacy of data collection, participant diversity, participant empowerment, and utility for other communities. This research illuminated obstacles and shortcomings within the Resilience Alliance 2010 RA workbook and offered recommendations to improve the utility of the RA for communities and participants. The RA template tested in this thesis could be adapted for application in other communities, including small urban and rural communities and larger municipalities. The RA template would benefit from additional case study research.

Acknowledgements

First, I would like to thank my advisor Dr. Stephen Murphy and committee member Dr. Sarah Wolfe. Conversations with Dr. Bob Gibson, Dr. Mary Louise McAllister, and Dr. Dan McCarthy also helped launch my thesis. My dear friend and colleague Tamara Harbar deserves special thanks for her assistance, humour, insights, and brilliant conversations shared throughout our years as master's students. My deepest thanks to my partner Karl for his love, encouragement, and letting me turn every room in the house into a roaming office. Thank you to Mom, Dad and Lindsay for your ongoing support, even when you didn't understand what my thesis was about! Thanks for letting me sneak "resilience" into so many conversations over the last two years and beyond.

This research would not have been possible without the support of many thoughtful people in Huntsville and broader Muskoka. I extend my deepest thanks to the twenty-two people who participated in the resilience assessment Delphi exercise (the "Think Tank") and forty-seven charrette participants who generously contributed their time, thoughts, and ideas. The 2010 Huntsville Town Council and the Huntsville Unity Plan working group helped jump-start the early stages of the RA, in particular former Councillor Mary Jane Fletcher. Their genuine interest and helpful suggestions along with the input from other Huntsvillians made a world of difference.

I also extend my thanks to the Resilience Alliance and Center for Community Enterprise, which created the RA frameworks from which I created the RA template piloted in this thesis.

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List of Abbreviations

RA - resilience assessment

SES - social-ecological system

The Town - The Town of Huntsville, Ontario

Unity Plan - The Town of Huntsville's sustainable community plan

Chapter 1 Introduction

As federal and provincial governments transfer responsibilities to municipalities, communities are increasingly left to reconcile social, economic, and environmental concerns (Cheuy 2011, Harcourt 2006). More communities are realizing that economic growth alone cannot assure improved wellbeing for even a small majority of citizens (Schaffer et al. 2006, Rogers and Ryan 2001, Kertzman and McKnight 1993). *Sustainable development* means to provide wellbeing and opportunities for improvement to current generations without degrading opportunities of future generations (WCED 1987).

Since the 1990s, the need for sustainable approaches to community planning has increased and various guidance frameworks have emerged (Gibson et al. 2005, Seymoar 2004). In Canada, the Federal Gas Tax Fund provides funding for municipalities to engage in sustainable community planning (FCM 2009). The fund is expected to deliver \$11.8 billion to municipalities from 2007-2014 and be extended by \$2 billion per year beyond 2014 (FCM 2009:43). This financial incentive helps motivate municipalities to voluntarily develop sustainable community plans.

This research helps position communities to make the most of funding opportunities by integrating community resilience into sustainable community planning. Resilience is the ability to cope with and learn from adversity, adapt and be changed yet retain basic structure and ways of functioning (McLaughlin 2010). A resilient community is better able to sustain desirable conditions as it experiences dynamic change (Newman et al. 2007, Walker and Salt 2006). Mainstream notions of sustainability often depend on growth and ever increasing efficiency (e.g. in transportation, recycling, energy use). In contrast, a resilience-based approach to sustainable development acknowledges that:

- Growth and efficiency alone often lead communities into fragile situations;
- Change and uncertainty are constant forces;
- There are limits to control and predictability; and
- Input from a diversity of stakeholders is desirable to test progress, reaffirm goals, and adapt to day-to-day realities.

(McLaughlin 2010)

Frameworks have been created to assess the resilience of natural resources (e.g. Resilience Alliance 2007) and human communities (e.g. Hegney et al. 2008). Integrating resilience management into sustainable community planning is a young area of practice. This thesis tested the effectiveness of a *resilience assessment* (RA) template designed by the researcher to assess community resilience and facilitate sustainable community planning. The RA template was primarily derived from RA frameworks created by the Resilience Alliance (2010, 2007) and Centre for Community Enterprise (CCE 2000). The template was field-tested using a single in-depth case study - the Town of Huntsville, Ontario. The full case report can be found in Appendix 3.

1.1 Research questions

The study was driven by two research questions, which were explored using data from discussions with community stakeholders and literature review:

1. Was the process used to pilot the resilience assessment effective according to criteria identified in Chapter 2?
2. How might lessons learned from the case study be applied to communities considering the RA process to foster sustainability?

1.2 Thesis rationale

The need to facilitate community planning to effectively manage resilience is stressed by the Government of Canada (Harcourt et al. 2006) and the United Nations (e.g. World Urban Campaign 2009-2013, 2010 Making Cities Resilient campaign, 2006 World Urban Forum). Assessing local resilience allows communities to identify and understand assets, weaknesses, and options for action (CCE 2000). This perspective is essential, since efforts to improve local conditions can inadvertently erode resilience and harm long-term sustainability. Research and application of sustainable community planning that incorporates resilience management is relatively young territory that requires improved understanding and extension (Flint 2010, Chapin et al. 2009, Newman et al. 2007, Walker and Salt 2006, Gibson et al. 2005).

The purpose of this study was to advance understanding and management of community resilience. The RA was envisioned as a tool to incorporate diverse opinions and knowledge in order to better understand, critique, and implement a sustainable community plan. The RA template was designed for application at the community scale (geographically defined as a municipality) and to

involve a diversity of stakeholders. The effectiveness of the RA was evaluated to improve its utility and transfer knowledge to other communities, practitioners, and researchers. This thesis chronicles the evaluation of the pilot RA case study. The RA framework could be adapted for application in other communities and would benefit from additional case study research.

This thesis contributed to knowledge and program improvement. The research contribution, through addressing the two research questions (1.1), was pragmatic in nature. By piloting and evaluating a resilience assessment applied at the community scale, this study aimed to improve sustainable community planning / implementation and associated participatory processes. The primary audience of this thesis was the dissertation committee but intended users of information resulting from this study included: communities, practitioners, and researchers.

1.3 Conceptual framework

Two conceptual areas informed the design and evaluation of the RA: sustainable community planning and community participation. This synopsis is elaborated in Chapter 2.

Sustainable community planning - The Federation of Canadian Municipalities (2009:33) defines sustainable community planning as a “collaborative, integrated approach to community planning that steers the community towards the implementation of local and global sustainability goals, using a long-term perspective in an adaptive institutions framework.” Deeper understanding was sought by examining: sustainable livelihoods (e.g. DFID 1999), criteria of sustainable communities (e.g. Gibson et al. 2005, Seymoar 2004), and resilience thinking and management (e.g. Resilience Alliance 2010, Gunderson and Holling 2002). Sustainable community planning requires long-term thinking to consider social, economic, and environmental challenges and potential interventions (FCM 2009). This long-term perspective increases uncertainty that underscores the need for resilience and adaptive management approaches (Olsson et al. 2004, Seymoar 2004). The need for resilience management is inherent within comprehensive sustainable community planning frameworks.

Community participation - Effective participation and collaboration with community stakeholders is integral to planning for sustainable and resilient communities (Armitage et al. 2008, Olsson et al. 2004, Gibson et al. 2005). At the community scale, there are numerous legitimate perspectives and different viewpoints are required to provide a sense of the overall system (Kay

2008, Waltner-Toews and Wall 1997). Armitage et al. (2007) describe participatory and collaborative management as an approach that engages the local community throughout the management process from problem identification, decision-making, implementation, to monitoring and adjustment. The term *participation* includes a spectrum of different levels of responsibility and power sharing between officials, citizens, and other groups (Arnstein 1969). For example, participation could impart little influence to community stakeholders in final decision-making or stakeholders could share equal decision-making power with conventional authorities (IAP2 2007).

Participatory research initiatives should help empower participants to take action related to social change, in this case to advance sustainability (Blackstock 2007, Tolan et al. 1990). Effective community participation (2.3) can help build local capacity to voice concerns, make choices, problem solve, build social networks, and select locally supported interventions (Lebel et al. 2006, Olsson and Folke 2004, Brocklesby 2003, Berkes and Jolly 2001). It is proposed in this research that the resilience assessment should contribute to participant empowerment and facilitate community transition towards a sustainable state.

1.4 Methodology overview

This section summarizes the research methodology, which is presented in detail in Chapter 3. Figure 1 (next page) shows how the research design addressed the research questions.

A qualitative approach was used to answer the research questions (1.1). Qualitative inquiry was well suited for this research project because:

- The research purpose and questions seek to explore and describe a case study in-context;
- The project requires an integrative approach to examine issues through a cross-scalar and cross-disciplinary lens; and
- The researcher's experience and understanding provide and facilitate analytical insight.

(Yin 2009, Denzin and Lincoln 2005, Patton 2002)

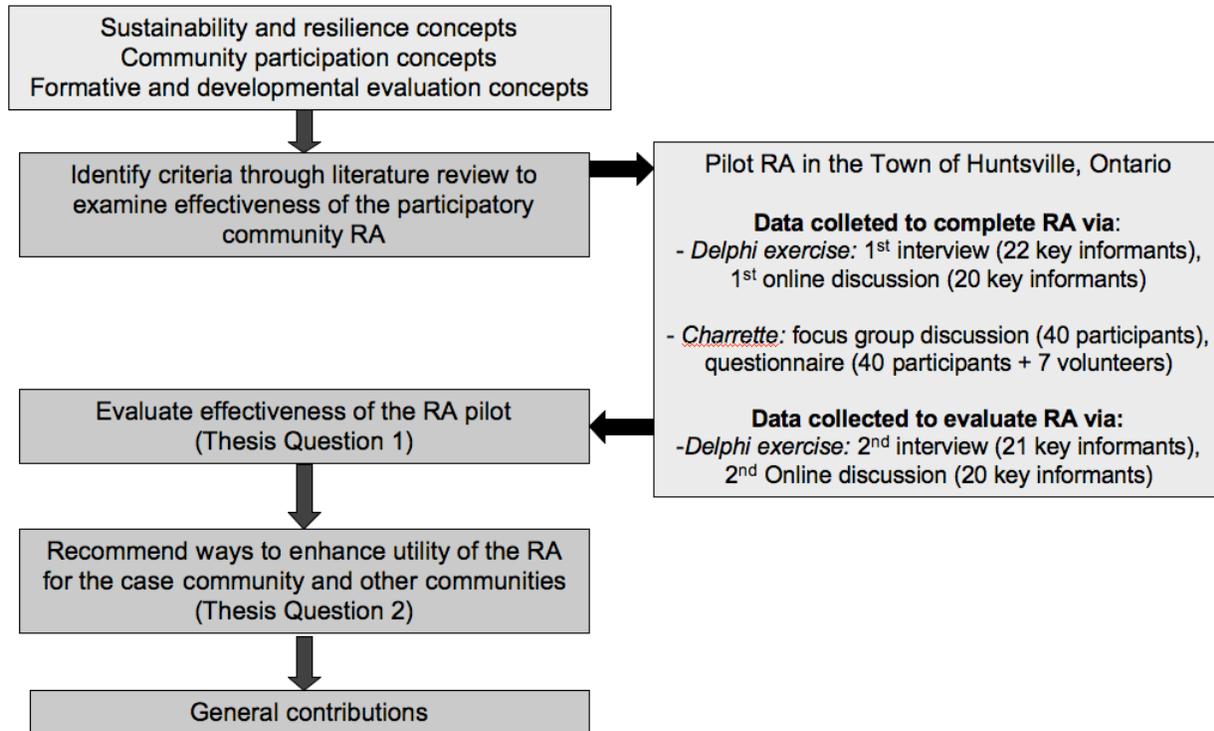


Figure 1 - Organizational framework for this thesis

Qualitative inquiry explores real-world situations as they unfold naturally and seeks in-depth understanding (Schwandt 1994). As stated by Creswell (2009:4), “Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem.” The research process involves emerging questions and procedures, inductive discovery of themes in the data, and interpreting the meaning of the data (Creswell 2009). Qualitative research honours an inductive style where the setting is approached without predetermined theories to test (Patton 2002). This differs from the deductive approach employed in quantitative research to test objective theories and hypotheses (Yin 2009). Both quantitative and qualitative approaches provide valuable but different information about the phenomenon under study. Depending on the context and research questions, quantitative and qualitative approaches can also be mixed.

For qualitative studies, the researcher’s experiences through engagement with people and circumstances are added to the assertions, interpretations, and claims that emerge from the data (Stake 1995). The researcher must be critically self-reflective when reporting personal experience and interpretations to produce a balanced and credible report of the situation under study. Qualitative data includes verbatim participant quotations and direct excerpts from documents.

1.4.1 Research paradigm

This study is structured by the constructivist-interpretive paradigm, which assumes:

- A relativist ontology whereby there are multiple realities;
- A qualitative set of methodological procedures for data collection and interpretation;
- A subjectivist epistemology where the researcher and respondents co-create understanding of the phenomenon under study and the local context through dialogue; and
- Credibility, transferability, dependability, and confirmability are better suited to evaluate the quality of studies completed within this paradigm (Lincoln and Guba 1985) rather than internal and external validity, reliability, and objectivity (Miles and Huberman 1994).

(Cohen and Crabtree 2006, Denzin and Lincoln 2000)

This inquiry was a *knowledge-generating evaluation*, which combined applied research and evaluation research (Patton 2002:220). From an applied research perspective, the pilot RA was developed to help understand societal problems and identify potential solutions. From an evaluation research perspective, the effectiveness of the RA was tested using a formative evaluation framework, which is explained in 3.4 (Gamble 2008). The evaluation included elements of developmental evaluation (Patton 2011), such as integrating learning that emerged during the formal evaluation. This research is meant to be part of an ongoing process of innovation where both the path and destination are evolving rather than solely making improvements to achieve a clearly defined goal (Gamble 2009).

This study also included elements of *participatory action research*, though stronger emphasis was placed on participatory research (Minkler 2005, Morford et al. 2004, Metzler et al. 2003). Participatory action research has been used in communities to build capacity for successful economic and social transitions (Morford et al. 2004) and is well suited for investigating complex social-ecological relationships (Cargo and Mercer 2008, Parkes and Panelli 2001). This study strived to help empower participants to take action related to sustainability, but this was not the primary and singularly pursued goal. The study benefited the research objectives and the case community by:

- Addressing community-identified issues in the local sustainable community plan;
- Involving participants in multi-stakeholder dialogue;
- Involving community volunteers in leading focus groups;
- Contributing to individual empowerment through involvement in the RA; and

- Potentially facilitating change in the RA template and, more specifically in the case community and its sustainable community plan.

1.4.2 Data collection and analysis strategies

To answer the two research questions, a single case study was performed in the Town of Huntsville, Ontario, to test the RA template. Qualitative data was collected using multiple methods, including participatory processes that involved community stakeholders (Creswell 2009, Yin 2003). A group of 22 key informants was purposefully selected using the snowball sampling technique (Patton 2002). These participants took part in a group collaboration technique - called a Delphi exercise - to conduct and then evaluate the RA. Primary information was gathered using two semi-structured interviews and two online group discussions.

A charrette was also performed to allow 40 self-selected participants and seven community volunteers to contribute to the RA. Primary information was collected using focus groups and a questionnaire. Secondary information from document review added detail and deepened understanding throughout the RA process. Data collection and analysis sought a holistic understanding of the case and generated insights on the utility of the RA.

The key informants helped evaluate the RA during the second Delphi interview and online discussion. The effectiveness of the process used to perform the RA was evaluated against four criteria identified through literature review (2.4). Inductive content analysis was performed to identify themes and patterns expressed by participants (Patton 2002). The researcher also identified themes and patterns in the data that were not explicitly articulated by participants (Patton 2002). A descriptive set of verbatim quotes was selected for each theme and pattern.

In performing inductive qualitative content analysis it is possible to fail to develop a complete understanding of the context and misinterpret or miss key categories, which can result in findings that do not accurately represent the data (Hsiegh and Shannon 2005:1280). Several tactics, described in Chapter 3, were used to help produce high quality qualitative data and findings that are credible and trustworthy. To improve the rigor of qualitative interpretations, Patton (2002) recommends testing the validity of interpretations by dealing with rival explanations and accounting for disconfirming cases and data irregularities.

1.5 Assumptions

It is important to identify the researcher's assumptions, values, and typical pathways for constructing and understanding knowledge to establish a credible voice to communicate the study's findings (Koch and Harrington 2002). Key underpinnings and assumptions inherent to this study include:

- Community issues (social, economic, environmental) should be addressed in an integrated and mutually reinforcing manner to protect the long-term wellbeing and integrity of society and the biophysical environment;
- Sustainable community plans created by Ontario municipalities require improvement;
- A perspective outside mainstream sustainability approaches is warranted and the resilience assessment approach has potential to improve sustainable community plans;
- The participatory RA template and evaluation used in this study can be adapted and applied to other communities; and
- The case study approach is the most appropriate tool for this research.

The researcher's familiarity with several theoretical perspectives influenced the design, conduct, and evaluation of the pilot RA: systems thinking, resilience thinking, complex adaptive systems, sustainable livelihoods, community participation, and formative and developmental evaluation (described in Chapter 2).

1.6 Ethics considerations

On May 4, 2010, this study was submitted for ethics review. There were few ethical concerns as participants were aware of the research motivations, there was no use of deception and participants had the right to withdraw from the study at any time. Full ethics clearance was received May 27, 2010, from the University of Waterloo's Office of Research Ethics.

1.7 Thesis organization

- Chapter 1 Introduction - Introduces the research purpose and questions, rationale for performing qualitative inquiry, assumptions, and data collection and analysis methods.
- Chapter 2 Literature review - Explores key concepts (sustainable community planning, resilience thinking, and community participation) and identifies criteria to evaluate the effectiveness of the pilot resilience assessment.

- Chapter 3 Methodology - Describes the research design, data collection and analysis methods, case selection criteria, and introduces the case community.

- Chapter 4 Key observations and findings - Presents key observations and findings that emerged during the evaluation of the pilot RA and discusses their relevance through literature review and reflection.

- Chapter 5 Conclusion - Summarizes major findings for each thesis question and outlines contributions of this research.

Chapter 2 Literature Review

To identify criteria to evaluate the pilot RA, literature review was performed on:

- Sustainable community planning practice in Ontario and abroad;
- Resilience thinking and the need for its integration into sustainable community planning;
- The resilience assessment process; and
- Community participation.

2.1 Background on sustainable community planning and resilience management

It is increasingly recognized that social systems where people live and operate are dependent upon and inextricably linked with ecological systems (Walker and Salt 2006, Folke et al. 2002, Guijt et al. 2001). From this perspective, human and natural systems are enmeshed and referred to as social-ecological systems (SES) (Walker et al. 2002). Degradation of social, economic, or environmental components increases vulnerability to threats that can result in decline or collapse of the system (Berkes et al. 2003). Evidence of such decline includes over-exploitation of ecological goods and services (Millennium Ecosystem Assessment 2005), inequality between rich and poor people (UNDP 1999), and rising economic volatility (Campbell 2009). Demand is growing for community planning that improves both human and ecological wellbeing over the long term (Cheuy 2011, IISD 2009, FCM 2009, Harcourt 2006).

Many authors assert that without long-term planning, the pressure exerted by human communities on ecological and socioeconomic systems could gravely impact humanity (Sanchez-Rodriguez 2009, Homer-Dixon 2006, MEA 2005, Diamond 2005, IHDP 2005, Farrington et al. 2002, Kunstler 1993). In Canada, the province of Ontario contains many of the country's fastest growing cities and towns. The provincial population is expected to increase by approximately 3.8 million people between 2005 and 2031 (Ministry of Finance 2006). Emerging and expanding communities must be guided by sustainability principles in order to ease pressure on social-ecological systems.

2.1.1 Sustainable livelihoods

Development centered on cultivating sustainable livelihoods was initially popularized due to its capacity to integrate linked social, economic, and environmental concerns (WCED 1987). Livelihood is defined as the means and outcomes of individuals earning an income to support themselves

(WCED 1987). Numerous frameworks have been created to guide the development of sustainable livelihoods (e.g. Scoones 1998, DFID 1999, Cattermoul et al. 2008, Global Ecovillage Network 2009). These schemes generally revolve around a few guiding principles (Brocklesby 2003:186). Chambers and Conway (1992:6) define a sustainable livelihood as a means of living that:

- Maintains and enhances current capabilities and assets;
- Is resilient and able to cope with and recover from stress and shocks;
- Provides sustainable livelihood opportunities for current and future generations; and
- Contributes net benefits to other livelihoods at the local and global levels in the long and short term.

2.1.2 Sustainable community planning

Sustainable community planning is poised to meet the sustainable livelihoods agenda by seeking benefits that are mutually reinforced between social, economic, and environmental domains (Gibson et al. 2005). The Federation of Canadian Municipalities (FCM 2009:33) defines sustainable community planning as a “collaborative, integrated approach to community planning that steers the community towards the implementation of local and global sustainability goals, using a long-term perspective in an adaptive institutions framework.”

Tables 1 and 2 (next page) summarize a selection of sustainable community planning methods that have been applied across the international scale and in Ontario, respectively.

Table 1 - Selection of broadly applied sustainable community planning agendas

<p>Local Agenda 21 - Endorsed as a global action plan by the 1992 Rio Earth Summit, this approach guides local governments through long-term planning and implementation. The framework includes: participative and multi-stakeholder governance, sustainability audit, shared community priorities, and identifying measurable outcomes (ICLEI 2008).</p>
<p>Long-term Planning - Advances some or all of the following guiding ideas: holistic and integrated approach, multi-generational timeframe (20-100+ years), highly participative and multi-stakeholder process, focus on bio-regional context and ecological footprint, adaptive management framework, build social and institutional capital (Seymoar 2004).</p>
<p>Melbourne Sustainable City Principles - Guidelines that help elected officials ensure long-term planning aligns with generally agreed-upon sustainability approaches (Seymoar 2004).</p>
<p>EcoBudget - Documents the annual loss and gain of natural capital in order to monitor the community's ecological footprint (Seymoar 2004)</p>
<p>Triple Bottom Line - A form of public sector cost accounting that measures and reports on expense and profit gained from different forms of capital, such as human, natural, and financial capital.</p>
<p>Local Action Plans - Action-oriented implementation plans that use an integrated approach to target a specific issue, such as reducing local greenhouse gas production.</p>
<p>Others - Additional frameworks that are similar to programs already described include the Natural Step, Sustainable Planning and Design Essentials and Earth Charter Action Tools among others (see Seymoar 2004).</p>

Table 2 - Selection of sustainable community planning agendas specific to Ontario / Canada

<p>Ontario Smart Growth - Set of principles for creating sustainable, “pedestrian-centered” communities that include: higher density developments; green building technology, infrastructure and transportation; conservation and connection of natural heritage and farmland; effective community involvement; and incentives for implementation (Smart Growth Canada Network 2009, Winfield 2005).</p>
<p>Ontario's Community Go Green Fund - Provincial funding for projects that help individuals reduce greenhouse gas emissions, perform outreach and education, and promote long-term behavioural change (MOE 2009). Most projects funded from 2008-2010 focused on enhancing resource use efficiency and conservation, which is an important component but cannot achieve sustainability alone (Gibson et al. 2005).</p>
<p>Canada's Green Municipal Fund - Federal funding for municipal projects that benefit the environment, local economies, quality of life, and help local governments set and surpass their sustainability goals through education (FCM 2008). Supports the development of various sustainable community plans, such as Integrated Community Sustainability Planning.</p>
<p>Integrated Community Sustainability Planning - A long-term planning project eligible for federal funding through the Federal Gas Tax fund. Can vary widely in structure but generally includes: engaging the community in visioning and priority setting; mapping community assets and sustainability issues; outlining goals and actions to be take; identifying indicators; monitoring and evaluating process; and building local adaptive capacity (AMO 2008).</p>

2.1.3 Resilience thinking

To make meaningful progress towards a sustainable future, community planning must restore and protect the resilience of individual livelihoods, communities, and ecological systems (Walker and Salt 2006, Berkes and Sexias 2006, Chambers and Conway 1992). Holling (1973) defined *resilience* as the ability of an ecological system to tolerate stress and change while continuing to support desirable characteristics. A resilient social-ecological system in a desirable state has greater capacity to support a good quality of life even when the system is under stress (Walker and Salt 2006:32). Francis (2010:13) argues that, rather than bouncing back to original conditions, the goal of a resilient system should be to adapt better to future disturbances. Three key concepts underlie resilience thinking and its role in planning for sustainable communities: multiple-scales perspective, complex adaptive system theory, and adaptive cycles.

Multiple-scales perspective - A community is a social-ecological system that is connected to and impacted by larger and smaller scales (Gunderson and Holling 2002) (Figure 2). Examples of different scales include levels of government, connections to other communities through economic trade, and local contributions to natural resource degradation.

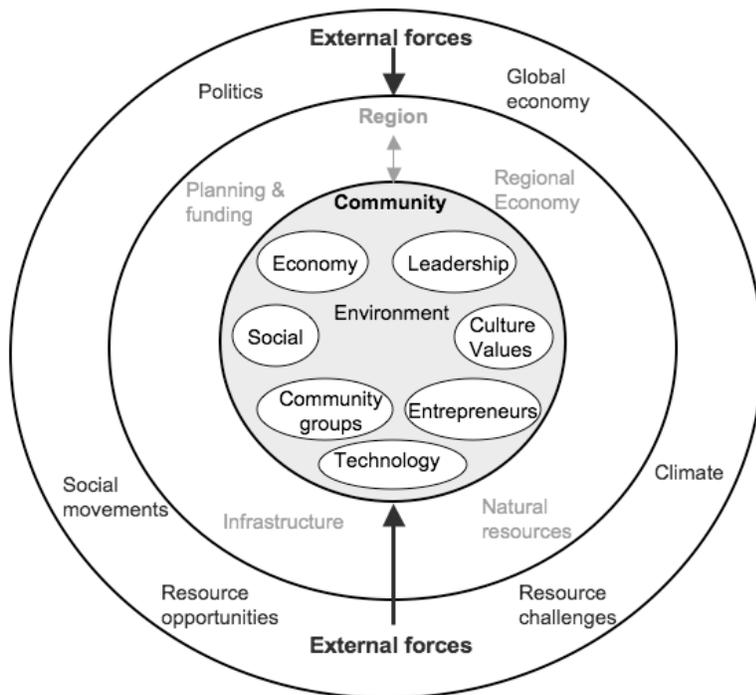


Figure 2 - Simplified depiction of connections between larger scales and smaller scales

The impact of beneficial or negative actions can cross scales due to connecting feedback loops between scales. Negative feedback connections can help push a social-ecological system across a threshold into a degraded state. The latter point is described in more detail below.

Complex adaptive system theory - A social-ecological system is *complex* because it behaves in unpredictable, non-linear ways and is punctuated by surprise and uncertainty (Gunderson and Holling 2002). For example, new properties can suddenly emerge. A social-ecological system is a *complex adaptive system* that experiences dynamic change and can shift between multiple ‘states’. The term *state* refers to a set of conditions that offers a specific bundle of goods and services (Gunderson and Holling 2002). Forces within and outside the system influence the current state, as shown and Figure 2, and could help shift the system into a different state.

Too much change and loss of resilience can push a system into an alternate state with different feedbacks and structure (Scheffer and Carpenter 2003). The shift from one state to an alternate state is called a regime shift (Carpenter 2003). Once a regime shift has occurred, undesirable results can be very difficult or impossible to reverse (Resilience Alliance 2007). Resilience-based management focuses on avoiding undesirable regime shifts. Facilitating a desirable regime shift, however, is not straightforward (Olsson et al. 2006). The thresholds between states are hard to see ahead of time and the conditions in a new state are hard to predict. Chapin et al. (2010:246) cautions, “transformations are always risky because, by definition, the changes are large, and the outcomes are uncertain, including potential capture by special interest groups.” In their examination of 15 resilience management case studies, Anderies et al. (2006) observed that capital inputs into the focal social-ecological system (e.g. from higher levels of government) amounted to subsidies to prevent these systems from changing rather than encouraging change.

Finally, Anderies et al. (2006) emphasize that, due to the high complexity of social-ecological systems, no theory can fully explain their behaviour. There are many theories capable of explaining some aspects of the aggregate behaviour of social-ecological systems. Anderies et al. (2006) portray resilience thinking as “a framework for systematically thinking about the dynamics of social-ecological systems” rather than as a theory to explain the system’s behaviour.

Adaptive cycles - A social-ecological system generally passes through the four phases of the adaptive cycle as it changes over time: release, reorganization, growth, and maintenance (Walker and Salt 2006:163), which are briefly described in Figure 3.

<p style="text-align: center;">Growth</p> <ul style="list-style-type: none"> ▪ Lots of flexibility and creativity ▪ Many people can access resources ▪ Take advantage of opportunities ▪ Build up resources to keep fueling growth ▪ Things can change quickly! 	<p style="text-align: center;">Maintenance</p> <ul style="list-style-type: none"> ▪ Flexibility and creativity seem less encouraged ▪ Resources get “locked up” by fewer people ▪ The system seems more rigid ▪ Things change slowly
<p style="text-align: center;">Reorganization</p> <ul style="list-style-type: none"> ▪ Creativity and new ideas are encouraged ▪ Competition over freed up resources ▪ Momentum and commitment to the new plan builds up ▪ Potential for something new to take shape or rebuild the old system 	<p style="text-align: center;">Release</p> <ul style="list-style-type: none"> ▪ Sudden disturbance causes rapid change ▪ Resources are suddenly available ▪ New opportunities begin to appear ▪ Need to create a new plan ▪ There is confusion and the future is uncertain...

Figure 3 - Four phases of the adaptive cycle (adapted from Walker and Salt 2006, Gunderson and Holling 2002)

The flow of a system through the adaptive cycle is not a linear process. A community is made up of many smaller entities (e.g. businesses, organizations, projects, policy planning) and each experiences its own adaptive cycle (Westley 2008). Change happens quickly at smaller scales and slowly at larger scales. Adaptive cycles operate at many different scales temporally, spatially, and in terms of speed of response time (Resilience Alliance 2010)

A system that experiences release and reorganization is generally more adaptable and able to support key functions that inhabitants depend on (Gunderson and Holling 2002). A system or sector in the maintenance phase loses resilience over time and a sudden disturbance could cause a chaotic release phase with severe repercussions (Walker and Salt 2006). For example, the closure of a local industry combined with provincial funding cuts to social programs and further frustrated by reduced tourism due to poor weather could all bring considerable hardship to a community.

Connections between adaptive cycles occurring at different scales can create a phenomenon called *cascading change*. This happens when an event or disturbance at one level directly or indirectly

triggers change in another level (Westley 2008). This can have positive consequences. For example, adaptive cycles could ‘line up’ at just the right time to allow an innovation to advance quickly through the bureaucratic process. Cascading change can also have negative consequences. For example, if increased gas prices decrease industry competitiveness that causes job layoffs and pushes families into mortgage foreclosure.

Implications for sustainable community planning - Communities that manage resilience to improve local ability to adapt to change are better able to cope with sudden disturbances. These communities actively work to create desirable outcomes by influencing and preparing for economic, social, and environmental change (Newman et al. 2007). Used as a strategy for community planning, a resilience-based approach requires proactive thinking and constant adaptation based on experience. Conventional management that focuses on increasing efficiency and controlling variability in order to achieve an optimal state can reduce resilience and heighten vulnerability (Berkes et al. 2003). Resilience-based management accepts foregone short-term benefits of high efficiency in exchange for long-term persistence with lower costs for crisis management (Anderies et al. 2006).

Resilience can also be an undesirable trait. Social-ecological systems can become trapped in very resilient but undesirable regimes in which adaptation is not an option (Anderies et al. 2006). Escape from such regimes may require large external disruptions or internal reformations to bring about change (Holling and Gunderson 2002). There are specific vulnerabilities or ‘traps’ within the adaptive cycle where a community’s lack of forward planning and capacity development can destroy resilience and leave a social-ecological system vulnerable to degradation (Westley et al. 2006). For example, this can occur when the dominant system resists change and tries to maintain the status quo rather than creating conditions for renewal (Patton 2011).

2.1.4 Increasing the resilience of social-ecological systems

Table 3 (next page) lists a variety of management options for managing and building the resilience of social-ecological systems. A representative, but not exhaustive, list of supporting literature is provided. For organization, the methods are divided into social and ecological categories.

Table 3 - Options to manage resilience of social-ecological systems

Ecological management practices for building SES resilience	Key authors
<p>Protect and enhance diversity</p> <ul style="list-style-type: none"> ▪ Explicitly recognize all ecosystem services in development proposals and assessments ▪ Protect and enhance ecological system diversity (e.g. species, habitats, landscape types, functional and response diversity) ▪ Restrict human control of ecological variability since increased efficiency can erode resilience ▪ Expand natural habitat for populations to express maximum life-history variation and strengthen capacity of ecosystems to self-repair (e.g. ecosystem-based management, watershed management) ▪ Maintain a diversity of short-term coping mechanisms to respond to changes in resource availability and access <p>Use a multiple scales perspective</p> <ul style="list-style-type: none"> ▪ Accept the panarchy nature of SES (multiple interconnected cycles) and manage at multiple scales as much as possible ▪ Understand what is happening at scales above and below the scale of interest and what cross-scale effects could occur <p>Make strategic interventions</p> <ul style="list-style-type: none"> ▪ Avoid undesirable pathways and regime shifts by encourage small-scale disturbance and recovery instead of large-scale collapse <p>Maintain modularity</p> <ul style="list-style-type: none"> ▪ Modularity prevents a shock from reverberating throughout an entire system <p>Adaptive management</p> <ul style="list-style-type: none"> ▪ Emphasize ongoing learning and flexibility to adjust management based on experience ▪ Respond to stress and surprise ▪ Nurture sources of resilience and renewal <p>Slow variables</p> <ul style="list-style-type: none"> ▪ Identify and keep a close eye on key controlling variables that could push the system into a regime shift <p>Other</p> <ul style="list-style-type: none"> ▪ Clear land ownership rights, access rights, understand and respect harvest restrictions and rules ▪ Strong penalties for violators ▪ See Gunderson and Pritchard (2002) for further detail on resilience mechanisms developed by ecosystems to cope with disturbance 	<ul style="list-style-type: none"> ▪ Anderies et al. 2006 ▪ Walker and Salt 2006 ▪ Bottom et al. 2009 ▪ Folke et al. 1998 and 2004 ▪ Berkes and Jolly 2001 ▪ Walker et al. 2005 ▪ Fischer et al. 2006 ▪ Ollson et al. 2006 ▪ Tompkins and Adger 2004
Social mechanisms for building SES resilience	Authors
<p>Support social innovation:</p> <ul style="list-style-type: none"> ▪ In a community, the prime sources of innovation are the capacity to experiment and learn to create novel conditions or opportunities ▪ Creativity, risk-taking, and adaptation based on experience are the fuel 	<ul style="list-style-type: none"> ▪ Folke et al. 1998, 2002, 2003 and 2005 ▪ Armitage et al.

<p>of entrepreneurialism</p> <p>Social capacity to act:</p> <ul style="list-style-type: none"> ▪ Build social capital (e.g. expand and connect social networks, common understanding across stakeholder groups, trust, strong leadership) ▪ Retain, value, and utilize social memory (use of past experiences to inform policy planning) ▪ Increase capacity of the social system to respond to stress and surprise (e.g. mobilize the social network to encourage action and persuade participation) ▪ Develop informal networks that facilitate information flow, identify knowledge gaps and individuals that serve as knowledge banks that can be drawn upon during critical times ▪ Strong awareness and response to cross-scale effects <p>Learning and adaptability:</p> <ul style="list-style-type: none"> ▪ Retain, value, and utilize ecological memory, transmission of ecological knowledge, and value for different types of knowledge ▪ Encourage learning, remembering past experiences, research, experimentation, and innovation ▪ Promote conditions for self-organization and ability to recognize and respond to feedback <p>Accept change and uncertainty:</p> <ul style="list-style-type: none"> ▪ Develop tight feedbacks through social networks connected across scales (e.g. local to national level) to help detect thresholds before they are crossed ▪ Worldview and cultural values that are consistent with resilience and sustainability (e.g. lasting benefits trump short-term gains, low resistance to change, value reciprocity, respect, patience, humility) ▪ Diversity (e.g. coping mechanisms, livelihood options) ▪ Modularity to insulate from shock or stress ▪ Ability to reorganize (e.g. flexible instead of fixed structures) ▪ Recognize and capitalize on opportunities <p>Collaborative, participative, and inclusive governance:</p> <ul style="list-style-type: none"> ▪ Bottom-up governance that is community and stakeholder-driven ▪ Encourage adaptive governance that builds and maintains flexibility in institutions and politics ▪ Protect some redundancy (e.g. overlapping institutions) ▪ Policies that support local adaptive strategies ▪ Capacity to voice concerns and make informed choices <p>Other</p> <ul style="list-style-type: none"> ▪ Legal tools: policy, regulations, fines ▪ Economic tools: investments (e.g. public infrastructure, subsidies, taxes, market creation, other economic instruments) ▪ Education 	<p>2007</p> <ul style="list-style-type: none"> ▪ Walker and Salt 2006 ▪ Singh 1996 ▪ Olsson et al. 2006 and 2004 ▪ Hegney et al. 2008 ▪ Walker et al. 2004 ▪ Lebel et al. 2006 ▪ Resilience Alliance 2007 ▪ Marschke and Berkes 2006 ▪ Cattermoul et al. 2008 ▪ Fischer-Kowalski and Rotmans 2009 ▪ Westley 2008 ▪ Loorbach 2007 ▪ Kemp et al. 2005
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Table 4 summarizes core principles, opportunities, and challenges for increasing the resilience of local livelihoods based on the work of Folke et al. (2005) and Berks and Sexias (2005).

Table 4 - Principles for increasing livelihood resilience

Learn to live with change and uncertainty
<ul style="list-style-type: none"> ▪ Opportunities: Learn from crisis, build rapid feedback capacity, diversify livelihood options and coping strategies, develop social networks and reciprocal labour exchange that supports well-being at multiple scales, reduce vulnerability ▪ Challenges: Biophysical and sociopolitical change, government policies, shifting market opportunities, resource degradation, eroded social cohesion, livelihood strategies that increase vulnerability (e.g. conflict with resource management or development policies)
Nurture sources of revitalization and renewal
<ul style="list-style-type: none"> ▪ Opportunities: Nurture innovation and novelty, value different sources of knowledge such as ecological memory and social memory (e.g. learning from past experience), diversify institutions to respond to an ever-changing environment (e.g. local resource management committees), create political space for experimentation, encourage decentralized and inclusive governance, nurture collaboration, ongoing learning, and adaptability ▪ Challenges: poor capacity for adaptation, innovation, and ongoing learning (limited formal and informal learning experiences), stifling top-down governance control, unequal value placed on different types of knowledge (e.g. traditional ecological knowledge versus scientific) and different sources of knowledge (e.g. based on gender, ethnicity, class, power), limited capacity to voice concerns and participate in collaborative decision-making, specialist interest groups may avoid learning
Create opportunities for self-organization
<ul style="list-style-type: none"> ▪ Opportunities: Build capacity for self-organization (e.g. via social networking), conflict management mechanisms, self-organize in response to external drivers (e.g. market opportunities), and for equity in resource access and allocation ▪ Challenges: self-organization can result in lost opportunities for innovation and limit future options (e.g. cultural norms that restrict learning and participation by women), livelihood responses that take advantage of short-term gains can be unsustainable, increase vulnerability and reduce overall well-being

No single variable or standard set of variables is likely to be robust across all systems (Berkes and Sexias 2005:973). When management strategies are selected, it is crucial to consider whether specific actions could negatively impact the *general resilience* of the overall system (Resilience Alliance 2010). If all the attention and resources are channeled into improving resilience against a particular type of disturbance, management actions may inadvertently reduce system-wide resilience.

The Resilience Alliance (2010) identifies five main features of general resilience:

- ***Diversity*** - In general, more diversity means greater resilience. Maintaining ecological diversity (e.g. species, habitat types) strengthens the ability of ecosystems to self-repair, while diversity in social and economic systems provides an array of options for coping and responding to change (e.g. diversity of skills, job options, and access to different resources).
- ***Openness*** - Refers to whether a system is tightly regulated and controlled to increase efficiency. There is no optimal degree of openness and either extreme can reduce resilience (e.g. lack of guidance and structure vs. too much rigid control and efficiency)
- ***Reserves*** - Reserves are stores of social, financial, economic, human, and natural capital. In general, more reserves mean greater resilience. The trend is often a loss of both social (e.g. local knowledge and collaboration) and ecological reserves (e.g. diversity of habitat and species).
- ***Tightness of feedbacks*** - There is often a trend towards longer times to respond to warning signals because of more levels of governance and procedural requirements. Effective on the ground monitoring for warning signals and clear communication are essential.
- ***Modularity*** - This term refers to self-reliant but linked sectors rather than one large and fully connected system that could collapse due to one internal failure. Modularity provides flexibility to reorganize and respond in time to avoid a spreading disaster. This feature requires a balance between self-reliance and connectivity to the broader community and outside systems.

2.1.5 Ontario sustainable community planning

In Ontario, sustainable community planning is a voluntary process for municipalities to undertake. Sustainable community planning has evolved substantially in terms of its geographic spread, breadth of issues that are addressed, indicator monitoring, and progress reporting (FCM 2009). Sustainable community planning agendas described in Tables 1 and 2 (2.1.2) employ a variety of methods to produce and implement a sustainable community plan. Four planning methods are highlighted below that have potential to build community resilience:

- ***Sustainability audit or vulnerability-and-asset mapping*** - The community is involved in identifying vulnerabilities, constraints, and livelihood assets (DFID 1999). Several frameworks that employ this tool include Scoones (1998), Global Ecovillage (2009), DFID (1999), and

ICLEI (2005). There is considerable variation in both the degree of community involvement and the types of capital that are included in the mapping exercise.

- ***Community visioning and scenario exercises*** - Key social and ecological driving forces are identified for the community and applied in different combinations to explore potential outcomes (Olsson et al. 2006, Peterson et al. 2003). Necessary steps to facilitate development of desirable options are then mapped out. Visioning and scenario exercises can involve the community throughout the process or the scenarios may be selected by officials and serve as a starting point for community discussions.
- ***Adaptive management*** - This management style entails ongoing learning and adjustment of management tactics based on experience (Adger et al. 2005, Folke et al. 2002). Management options are considered experiments that are highly flexible and open to adjustment depending on evaluation of progress, new opportunities, and threats.
- ***Participative and collaborative management*** - This approach engages the community in the management process, from problem identification to decision-making, implementation, monitoring, and adaptation (Armitage et al. 2007, Anderies et al. 2006). This type of governance can include community-based, multi-stakeholder, and co-management structures that entail varying degrees of power and responsibility sharing between the partners. This approach is described in greater detail in 2.3.

Though progress has been made, many barriers continue to constrain sustainable community planning in Ontario (ECO 2007, Winfield 2003). A key concern is failure to articulate assumptions that guide the sustainable community plan. For example, some advocate that sustainability requires balancing competing economic, social, and environmental priorities that are best managed separately (Gibson et al. 2005). This approach can perpetuate notions that are not conducive to creating sustainable livelihoods (Guijit 2001). Managing social, economic, and environmental components as separate entities can overlook the wellbeing of and unexpected responses from the broader system (Lemos 2003).

Another concern is how complex and cross-disciplinary issues are addressed through the sustainable community plan. A growing body of literature stresses the need to approach such problems using an integrated perspective and participatory processes that involve affected stakeholders (Plummer and Armitage 2007, Francis 2006, Hallsmith 2005). An integrated

perspective requires dialogue that brings together different sectors, expertise, sources of knowledge, and values (Plummer and Armitage 2007, Lebel et al. 2006).

A final consideration is the lack of resilience thinking in sustainable community planning. The need for resilience management is inherent within comprehensive sustainable community planning frameworks but may not be sufficiently addressed in individual community plans. Sustainable community planning requires looking beyond the normal planning horizon to consider the impacts of various challenges and potential interventions in the longer-term future (FCM 2009). From this long-term perspective, uncertainty increases and the need to use adaptive approaches and increase resilience becomes apparent (Seymoar 2004). Many communities are beginning to look at strategic planning activities in new ways to achieve development goals and promote resiliency (Flint 2010, Gibson et al. 2005). The resilience assessment process, described in the next section, is a tool with potential to strengthen sustainable community plans and catalyze their implementation.

2.2 Assessing the resilience of a human community social-ecological system

A *resilience assessment* (RA) is a participatory process that involves multiple stakeholders in understanding a social-ecological system, how it has changed over time, and how it might change in the future (Quinlin 2008). This concept was originally developed to help understand and manage natural resources (Gunderson and Holling 2002, Walker et al. 2002). Different forms of resilience assessments are used by organizations and communities to understand their own resilience and make informed development decisions (Flint 2010, Newman et al. 2007, CCE 2000). The RA examines how well a community nurtures its ability to cope with stress, adapt to change, and encourage renewal and transition towards a sustainable future state.

Managing the resilience of human communities has largely focused on natural resource management, disaster planning, or risk management and mitigation related to climate change and natural hazards (e.g. Adger et al. 2005, Folke et al. 2004, Berkes and Jolly 2001). More recently, resilience management has been used to explore and inform development at the community and regional level (e.g. Resilience Alliance 2011, Stockholm Resilience Centre 2011, Wilkinson et al. 2010, Colding 2010, Walker et al. 2009, Evans 2008, Hegney et al. 2008, Hopkins 2008, Ortiz and Savory-Gordon 2006).

The resilience assessment tested in this thesis was derived from RA templates designed by the Resilience Alliance (2010, 2007) and Centre for Community Enterprise (2000). The RA was modified in order to examine a human community social-ecological system geographically bounded by a municipal boundary; utilize a participative multi-stakeholder process; and strengthen the local sustainable community plan. The basic phases of the RA process are described below.

2.2.1 Resilience assessment process

The following eight questions summarize what the RA examines and the types of change it seeks to bring about. The questions were adapted from the Resilience Alliance (2010) RA workbook version 2.0 to suit community-scale application.

1. In what ways do larger scales foster change or constrain the community?
2. How are the innovations and learning coming from smaller scales being captured at the community-level?
3. How can opportunities for leveraging cross-scale connections be created to achieve desirable outcomes for the community and broader region?
4. Is the overall community or certain sectors in the maintenance phase of the adaptive cycle? How can renewal be encouraged?
5. How can collaborative efforts in the community stay vibrant as conditions shift, participants change, and attention wanes?
6. How can social and ecological thresholds be better understood?
7. Given that there may be completely novel shocks with impacts that are yet unknown, do parts of the system show low or declining levels of the general resilience features (p.20)?
8. Could specific management actions unintentionally erode general resilience?

The four phases of the RA framework, as initially presented by Walker et al. (2002), are described below. The RA is a ‘back-and-forth’ process and understanding gained from one step can deepen understanding or question the conclusions of other steps (Resilience Alliance 2010).

1. ***System description:*** A conceptual model of the social-ecological system is developed through a process that involves stakeholders in vulnerability-and-asset mapping, profiling historical resilience of the system, and identifying key driving variables that influence the ecological and social subsystems. The first task is to describe the current social-ecological system and its important interconnections, main issues, governance, and management goals (Kay 2008). Plummer and Armitage (2007) describe the system by focusing on: (1) stresses and shocks within the community, (2) assets, (3) vulnerabilities, (4) capacity to cope, and (5) barriers to attaining livelihood goals.

Understanding past patterns of change and the system's movement through the adaptive cycle provide insight into the current situation and how the community might react to change (Carpenter et al. 2005, Walker et al. 2001). A historical resilience profile denotes distinct regimes the community has passed through, responses to prominent disturbances (e.g. economic downturn, political upheaval, disease outbreak, drought), and other significant changes (e.g. technological innovation). Kay (2008) suggests looking at history from ecological, political, social, and economic perspectives to identify influences that cause the system state to change.

Identifying indicators of resilience is also commenced in this stage. One of the key challenges of the RA is to ascertain the location of and distance to thresholds that separate alternate regimes (Biggs et al. 2009). The conventional method to determine the condition of a system, such as community progress towards sustainability targets, is to select and monitor representative indicators. Indirect indicators are used to help monitor social-ecological resilience since it cannot be directly observed (Carpenter et al. 2005). Carpenter et al. (2005) describes indirect resilience indicators as:

- Forward-looking;
- Context appropriate;
- Occurring in multiples or clusters that reinforce one another;
- Consistent with resilience theory;
- Possible to repeat measurement; and
- Possible to assess within a single system or a range of systems over time.

Examples of indirect indicators of livelihood resilience include individual wellbeing, capabilities, and access to assets (Marshke and Berkes 2006, Deb et al. 2002, Scoones 1998). Methods to identify a suite of indirect indicators include stakeholder assessments, scenario or model explorations, and case study comparison (Carpenter et al. 2005).

2. ***Future modeling:*** Understanding gained from the system description completed in the first step is synthesized into narratives about how the situation might unfold in the future (Kay 2008). Unpredictable and uncontrollable drivers of change are identified and combined with stakeholder visions for the future to create a limited set of future scenarios. This task can be a qualitative

exercise (scenario exploration, e.g. Peterson et al. 2006) or quantitative (simulation models, e.g. Biggs et al. 2009).

3. **Resilience analysis:** An iterative process is used to explore future scenarios created in step 2. Focus is placed on examining attributes that create or erode resilience. Examples of the resilience analysis process are provided by Walker and Salt (2006), Peterson et al. (2006), and Walker et al. (2006). The goal of the RA is to identify actions that will restore lost resilience, for example, by increasing the diversity of future options. This is different from guiding the system toward a target on the basis of forecasts.
4. **Resilience management:** Interventions are selected to guide resilience management that builds resilience and advances the development of sustainable system states (Resilience Alliance 2007). Interventions can be grouped into four main types: (1) policy and institutions; (2) fiscal and monetary investments that encourage change in order to enhance adaptability; (3) management guidelines; and (4) education. Management can also focus on reducing the resilience of an undesirable state and increasing the resilience of a desired state (Carpenter et al. 2005).

The Resilience Alliance's (2010) RA framework uses a five-step process:

1. Current system description;
2. Historical profile and system dynamics;
3. System interactions and general resilience;
4. Governance; and
5. Acting on the assessment.

The following excerpt and Figure 4 from the pilot RA case report (Appendix 3) outlines the resilience assessment steps used in this thesis.

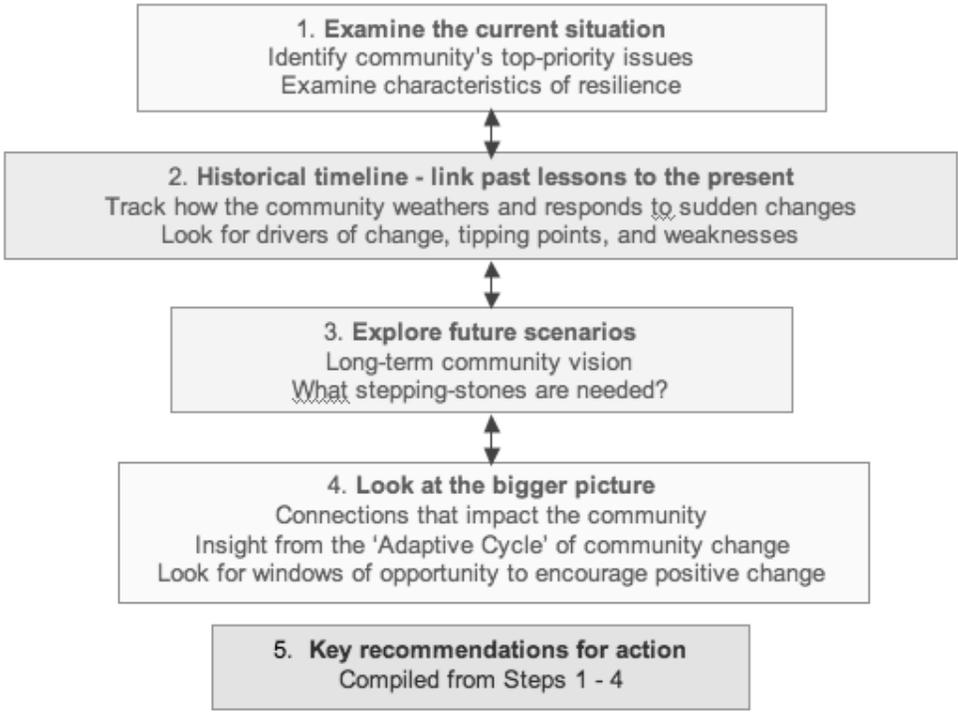


Figure 4 - Five steps of the RA piloted in Huntsville, Ontario

Step 1. Examine the current situation: Information was collected from government statistics, community reports, and from community stakeholders to:

- Select three top-priority issues to focus the RA; and
- Examine six sources of community resilience.

Step 2. Historical timeline: The timeline examines how the community responds to significant challenges using literature review and community input. This step revealed:

- How Huntsville has responded to change in the past;
- Recurring disturbances and vulnerabilities; and
- Underlying causes or drivers of change in the community.

Step 3. Explore future scenarios: Community stakeholders constructed future scenarios to illustrate key issues of concern as Huntsville strives to be sustainable and accommodate growth over the next 25 years. Two scenarios were analyzed to highlight:

- A potential 25-year community vision of Huntsville;
- Thresholds of concern, potential threats, and underlying assumptions; and
- Action strategies to support desirable change.

Step 4. Look at the bigger picture: Input from community stakeholders and literature review were used to identify:

- Huntsville’s current location in the adaptive cycle;
- Connections within and outside the community that strongly impact Huntsville; and
- Strategic opportunities and limitations for management based on the adaptive cycle.

Step 5. Key recommendations for action: Recommendations for acting on the RA are compiled from community input, researcher’s informed opinion, and literature review.

2.3 Community participation

Literature on sustainability, resilience thinking, and community planning emphasize the importance of engaging a diversity of stakeholders. From a systems thinking perspective, understanding a complex system requires input from people with different backgrounds and expertise since there are multiple legitimate perspectives (Kay 2008, Waltner-Toews and Wall 1997). Armitage (2008) identifies participation and collaboration as essential features of resilience management, along with accountability, leadership, knowledge building, learning, and trust within networks. Francis (2006:60) supports community involvement in exploring issues concerning sustainability since it: (1) combines knowledge and experience from a number of sources so that unknowns are not just conspicuous oversights; (2) fosters social learning through a process that exposes participants' lack of knowledge and challenges beliefs and values; and (3) develops mutual trust so that trade-offs can be reasonably discussed while still retaining the basic principles underlying sustainability.

Participatory processes have been used to improve democratic legitimacy and accountability, active citizenship, social cohesion, community services, and capacity building (Involve 2005). Community participation has grown partly due to increased public demand, agency requirements, and its ability to develop better policy and management plans (FCM 2009, Armitage et al. 2007, Brody et al. 2003, Blahna and Yonts-Shephard 1989, Susskind and Cruikshank 1987). Citizen apathy and mistrust towards government / agencies and participatory processes themselves are substantial hurdles that must be overcome (Involve 2005, Brody et al. 2003). The shift toward greater citizen involvement is expected to grow as democratic societies become more decentralized, interdependent, and challenged by intractable problems (Roberts 2004).

i. Community participation frameworks

The term *community participation* is not used uniformly. A variety of frameworks break community participation into different categories depending on the reason for involving the community and the amount of power devolved to citizens. The International Association for Participation (IAP2 2007) lists five categories of community engagement:

- Inform - provide information to the public;
- Consult - obtain public feedback;
- Involve - work directly with public throughout the process to ensure public concerns are understood and considered;

- Collaborate - partner with the public in each aspect of decision-making; and
- Empower - place final decision-making in the hands of the public.

The Tamarack Institute for Community Engagement (2011) uses a framework that considers community participation an intermediate form of engagement where “local residents and organizations influence the priorities and resources of external organizations.” Community participation is considered more meaningful than reactive engagement, like community consultation. It is considered weaker than community empowerment where the community works in shared planning and action along with decision-makers. Arnstein (1969) dissected participation into three main types: nonparticipation (e.g. manipulation), tokenism (e.g. informing, consultation) and citizen power (e.g. partnership, citizen control). Community participation can be a continuous or episodic process and can involve a broad array or limited selection of stakeholders (Brody et al. 2003).

Participatory processes that involve multiple stakeholders vary in how power and responsibility are shared between the people involved. ‘Top-down’ community development models tend to perform lower quality participation, such as consultation to collect opinions but bestow little empowerment (Cornwall 2008, Kertsmann and McKnight 1993). ‘Bottom-up’ approaches, where the community contributes to decision-making, can build local capacity to voice concerns, problem-solve, and extend social networks (Powel and Geoghegan 2005, Brocklesby 2003, Mathie and Cunningham 2002). Bringing together diverse perspectives, experience and types of knowledge can enable social learning and help ensure selected interventions are locally appropriate (Olsson and Folke 2004, Berkes and Jolly 2001, Lebel et al. 2006). Bottom-up models are favoured for sustainable community planning (Norgaard et al. 2009, Lo and Halseth 2007, Dale 2005). The Federation of Canadian Municipalities (FCM 2009:33) found sustainable community plans that are “government-led and citizen owned” or “citizen-led with government as a crucial participant” are more robust than plans developed solely within the municipal office.

ii. Key challenges and tensions

The rising popularity of community participation in community planning has been accompanied by certain tensions (e.g. Irvin and Stansbury 2004, Botes and van Rensburg 2000). The UK National Community Forum observed, “...inconsistency in the definitions, interpretation, and implementation of community participation presents one of the most significant barriers to the achievement of empowered communities and improved public services (Morris 2005:vi).” Brodhead (2010) laments

that though the community level is where energy is tapped to effect change, more citizens are refusing to engage. Bracht and Tsouros (1990) identify common difficulties in implementing citizen participation: lack of time and political support; potential for conflict; attracting only ‘professional’ volunteers; and public belief that community participation disguises manipulation.

Several conventions of experts across UK government, practitioners, policy officers, academics, activists, and community organizations (e.g. YHEP 2009, Morris 2005) identified key challenges that inhibit effective community participation:

- Destructive impact of poor engagement practices that produce poor outcomes, decrease trust, and reinforce negative attitudes and behaviour;
- Convincing decision-makers that greater participation beyond purely representative democracy is desirable and effective for decision-making;
- Belief that participation is an ‘added extra’ rather than a central component and treating empowerment as a key outcome;
- Tendency of officials to observe informal community leaders as ‘unrepresentative’;
- Securing adequate resources to host participation processes;
- Lack of public faith in the political system; and
- Effectively measuring participation.

There is discrepancy regarding how much participation is sufficient for community planning. To develop a sustainable community plan, the Federation of Canadian Municipalities (FCM 2009) suggests intense engagement with the full spectrum of community stakeholders, including elected officials, civil servants, the private sector, NGOs, community-based organizations, academics, and citizens. According to Involve (2005), most practitioners and academics agree that better participation is needed rather than more participation. Better participation requires different participatory methods to address different audiences rather than involving everyone all the time (Involve 2005, Morris 2005). From this perspective, targeted participants include direct stakeholders and groups that are typically excluded (Involve 2005).

Finally, there is considerable debate regarding how to measure or evaluate community participation processes (Weaver 2010, Morris 2005, Kelly and Vlaenderen 1995). Measurements of community participation often examine: who and how many people were involved, ability of participants to influence decisions, what participation techniques were used and how facilitation was

performed (e.g. Kelly 2010, Burns and Taylor 2000, Bracht and Tsouros 1990, Cohen and Uphoff 1977). One consideration is whether the diversity of participants was sufficient according to the program's purpose and goals. For example, were participatory processes attended by experts, key interest groups, traditionally marginalized groups and non-activist members of the public (Zakus and Lysack 1998, Moote et al. 1997)?

iii. Empowerment through participation

A vital component of community participation is its relation to empowerment and promoting desired behaviour change to address sustainability concerns (Blackstock et al. 2007:726). Zimmerman and Rappaport (1988:746) describe individual empowerment as the connection between a sense of personal competence, a desire for, and willingness to take action in the public domain. Self-efficacy is a related concept that refers to the belief that one has the skills and ability to achieve goals (Zimmerman and Rappaport 1988). Important benefits of community participation include: heightened sense of responsibility, conscientiousness regarding the focal issues, power gained through the acquisition of new skills and resources, potential for diffusion of knowledge in the community, and greater use of indigenous expertise (Zakus and Lysack 1998:2). Empowerment can strengthen community cohesion, but it can also promote certain individuals or groups at the expense of others (Riger 1993:29). For example, empowerment strategies often stress the development of advocacy skills and social activism that can heighten conflict (Zakus and Lysack 1998:9). The utility of research methods meant to support an empowerment agenda is determined, in part, by the impact on participants (Foster-Fishman et al. 2005:276).

iv. Effective community participation

Defining what good or effective participation entails depends on the context, purpose of soliciting public opinion, ability of participants to influence change, the participatory methods used, and accessibility of the process to potential participants (Cornwall 2008, Involve 2005). For the purposes of the RA, community participation must facilitate information sharing, idea generation, learning, critical thinking, and capacity building to manage resilience and sustainability concerns (Resilience Alliance 2010, CCE 2000, Gokhale 1995). Key attributes of effective community participation were distilled from the Tamarack Institute for Community Engagement (2003) "seven criteria of community engagement", IAP2 (2011b) "core values of public participation", and additional literature (e.g. Roberts 2004, Zakus and Lysack 1998), which include:

- Focus on collaboration among participants and researcher(s);
- Include a diversity of stakeholders;
- Facilitate constructive debate and development of shared vision;
- Contribute to participants' individual empowerment related to sustainability; and
- Achieve results and create action.

2.4 Criteria to evaluate a participatory community resilience assessment

Based on literature review (2.1-2.3), four criteria were selected to evaluate the effectiveness of the participatory community RA piloted in this study. The criteria set focuses on the *process* used to conduct the RA but is not exhaustive.

- **Criterion 1. Data collection provided sufficient information to complete the RA** - The key question for this criterion was: "To what extent did the prescribed data collection process address the questions posed in the Resilience Alliance (2010) RA framework?" This question serves to illuminate: major modifications that were necessary to extend the RA's application to the community scale, information gaps, and obstacles. Recommendations are provided to improve the RA's application to the community scale and usefulness for community members and leaders intended to use the report.
- **Criterion 2. Diversity of stakeholders participated** - The key question for this criterion was: "Did the sampling strategies collect a sufficient diversity of participants?" Three elements are considered to assess this criterion: (a) participant sampling strategies; (b) participants' demographic characteristics (e.g. gender, education, age, occupation); and (c) participants' primary interests (e.g. economic, social, environmental).
- **Criterion 3. Participatory processes contributed to participant empowerment** - The key question was: "What personal changes or actions did participants report that they felt involvement in the RA contributed to?" Individual empowerment was defined as the connection between a sense of personal competence, a desire for, and willingness to take action related to sustainability in the public domain.
- **Criterion 4. RA process would be useful for other communities** - Participants are well poised to provide feedback regarding the utility of the RA and recommendations to improve the program. The key question was "What strengths and weaknesses did participants and the researcher identify in the participatory RA?"

Chapter 3 Methodology

This chapter describes the research design used to evaluate the pilot RA. A methodology synopsis is provided below, which is elaborated in subsequent sections that describe the methods used to:

- Conduct case study research;
- Perform and evaluate the resilience assessment;
- Manage data; and
- Perform data analysis.

3.1 Methodology synopsis

A single in-depth case study was conducted in the Town of Huntsville, Ontario, to test the effectiveness of a community resilience assessment (RA) and address two research questions:

1. Was the process used to pilot the resilience assessment effective according to criteria identified in Chapter 2?
2. How might lessons learned from the case study be applied to other communities considering the RA process to foster sustainability?

A mixture of qualitative methods was used to pilot and evaluate the RA, including key informant interviews, online group discussions, focus groups and secondary literature review. The results of the RA were synthesized into the case report provided in Appendix 3. The RA was then evaluated against criteria identified in 2.4. Inductive data analysis was performed using an open coding scheme to identify patterns and themes, and derive meaning regarding the effectiveness of the RA (Patton 2002). Deductive analysis was used to corroborate key observations and findings that emerged (Miles and Huberman 1994). The developed theory (Chapter 2) was revisited and new concepts were explored that were distilled from the case study.

3.2 Case study methodology

Case study research strives to understand a bounded system (Yin 2009). This research aligned with the criteria and purposes of case study research outlined by Yin (2009):

- The research topic was broad versus narrow;
- Research questions asked ‘how’ or ‘why’ questions;
- The investigator had little or no ability to control events;

- The study focused on complex phenomenon in a real-life context and on multivariate conditions rather than isolated variables; and
- Multiple sources of evidence were sought rather than singular sources.

Cases should be selected that provide access to the required data and have a high likelihood of illuminating the research questions (Yin 2009). A single case study can deepen understanding of a complex social phenomena, provide corroborating or contradicting evidence for a given theory, and may be necessary due to limited time and resources (Stake 2005, Yin 2003). Single case study research is valid and useful but not the end in itself (Stake 2005). Since findings from a single case study cannot be inferred across a broader population, analytic generalizations must be made to relevant theory (Stake 2005). More case studies are required to determine whether findings from a single case study are supported by further evidence (Yin 2009).

The RA case study performed in this research was exploratory, since it assessed the feasibility of a research procedure. The case study was also descriptive since it provided a complete description of a phenomenon in context (Yin 2003).

3.2.1 Case community selection

Screening criteria were used to select a case community and provide a replicable procedure to select future case studies for follow-up research. Findings from additional case studies that meet the screening criteria could support or challenge findings from the present case study (Yin 2003).

Case selection criterion 1 - Process

- The community is engaged in sustainable community planning and the sustainable community plan meets the objectives of an Integrated Sustainable Community Plan (AMO 2008) and Local Agenda 21 (ICLEI 2008);
- The sustainable community plan focuses on community change and renewal rather than trying to maintain a desired set of conditions indefinitely;
- The sustainable community plan was developed using a bottom-up community participation process that solicited public involvement in implementation and decision-making; and
- The sustainable community plan is open to further adjustment (e.g. “living document”).

Case selection criterion 2 - Policy

- Development of the sustainable community plan was partially or fully federally funded (e.g. Canada's Green Municipal Fund; FCM 2008); and
- The case community offers some potential for the study's findings to impact local policy, ascertained based on non-binding response of local decision-making council.

Case selection criterion 3 - Place

- Small urban or rural community (population < 100,000 people; OMAFRA 2010).

Case selection criterion 4 - Access to required information

- All or part of the local decision-making council voice support for the project, commit to be study participants, and help identify other key informants.

3.2.2 Case community description - Town of Huntsville, Ontario

The Town of Huntsville, Ontario (the Town), was selected as the single case study for this research. In 2009, the Town received funding from the Federation of Canadian Municipalities to develop a long-term sustainability plan - called the Unity Plan. The Town Council hired a consulting firm from Toronto, Ontario, to conduct public consultation to develop the plan. The consultation process sought input from the community regarding assets and top-priority needs that must be addressed in order to become a sustainable town. Over 1200 individuals had the opportunity to learn about the Unity Plan and provide input through three community forums, individual face-to-face conversations, places and spaces meetings, presentations, display booths, as well as online through Facebook and a blog (Town 2010). The Unity Plan, released in September 2010, was based on input from the community, municipal staff, Town Council, the Town's Environment Committee, Unity Plan working group, adjacent municipalities, the District of Muskoka, and government organizations (Town 2010).

The Town hoped the Unity Plan would improve the local economy and local quality of life by helping attract green industry, knowledge- and service-based businesses (The Forester 2009). The Unity Plan is a decision-making framework to help guide plans, policies, programs and initiatives under the responsibility of the Town and actions led by the community and other stakeholders (Town 2010). This means the Unity Plan will influence municipal decisions and all other plans must be consistent with the Plan. The Plan also provides a mechanism for community organizations and individuals to influence the decisions made for their community and participate in implementing

actions (Town 2010:4). Huntsville's investment in developing the Unity Plan benefited this research by generating interest in sustainability within the community.

Case community synopsis - Huntsville is a growing town located in the District Municipality of Muskoka. The Town supports a permanent population of about 20,000 (2011) people and attracts a large compliment of seasonal residents who cottage in the area. By 2031, the Region of Muskoka's permanent population is expected to grow by approximately 22,500 people and the seasonal population by approximately 14,300 people - Huntsville is expected to attract a large portion of this growth (District of Muskoka 2011). Future development is directed through the Town's Official Plan, zoning bylaws / regulations, Unity Plan, and Community Master Plan.

In terms of the natural environment, Huntsville is located on the edge of the Canadian Shield and is characterized by rocky outcroppings; generally thin and nutrient poor soil; coniferous and hardwood forests; numerous lakes, wetlands and rivers; and a diverse compliment of flora and fauna species (District of Muskoka 2004). The entire municipality of Huntsville lies within the Lake Muskoka watershed, which boasts 94% natural forest cover and water quality above provincial guidelines for recreational use in most areas (District of Muskoka 2004, Muskoka Watershed Council 2010).

The local economy is closely tied to the environment for tourism and to attract new residents and economic opportunities. Decline of primary resource and manufacturing industries has left Huntsville largely dependent on tourism and service industries (LTAB 2008). Huntsville's primary urban area also serves as a commercial and business centre for the northern part of Muskoka and adjoining areas in the District of Parry Sound and Haliburton County (MPG 2001). Decline in manufacturing and primary industries (i.e. agriculture, forestry, aggregates) is projected to continue, whereas tourism, construction, retail, service, real estate, and public sectors are expected to grow (District of Muskoka 2011). The local government emphasizes the need to diversify the economy by growing event tourism (sporting events and conventions), environmental research, and related businesses.

In terms of civil society, the 2011 Huntsville Community directory identifies 10 services groups; 7 seniors clubs; 19 Arts and culture groups; 36 sports groups; 38 miscellaneous groups (e.g. youth, social assistance, recreation, environmental stewardship); and active landowner and lake associations. Key sources of funding and investment include the federal government, the Province

(e.g. Rural Economic Development program), the District, municipality, and not-for-profit organizations (e.g. Muskoka Futures and the local Chamber of Commerce).

3.3 Resilience assessment methodology

A participatory process that involved multiple stakeholders was used to pilot the RA. To complete the RA, qualitative data was collected from secondary literature review and from primary sources using: (i) key informant interviews and online discussions within a Delphi exercise, and (ii) focus groups and questionnaires through a community charrette (Figure 5).

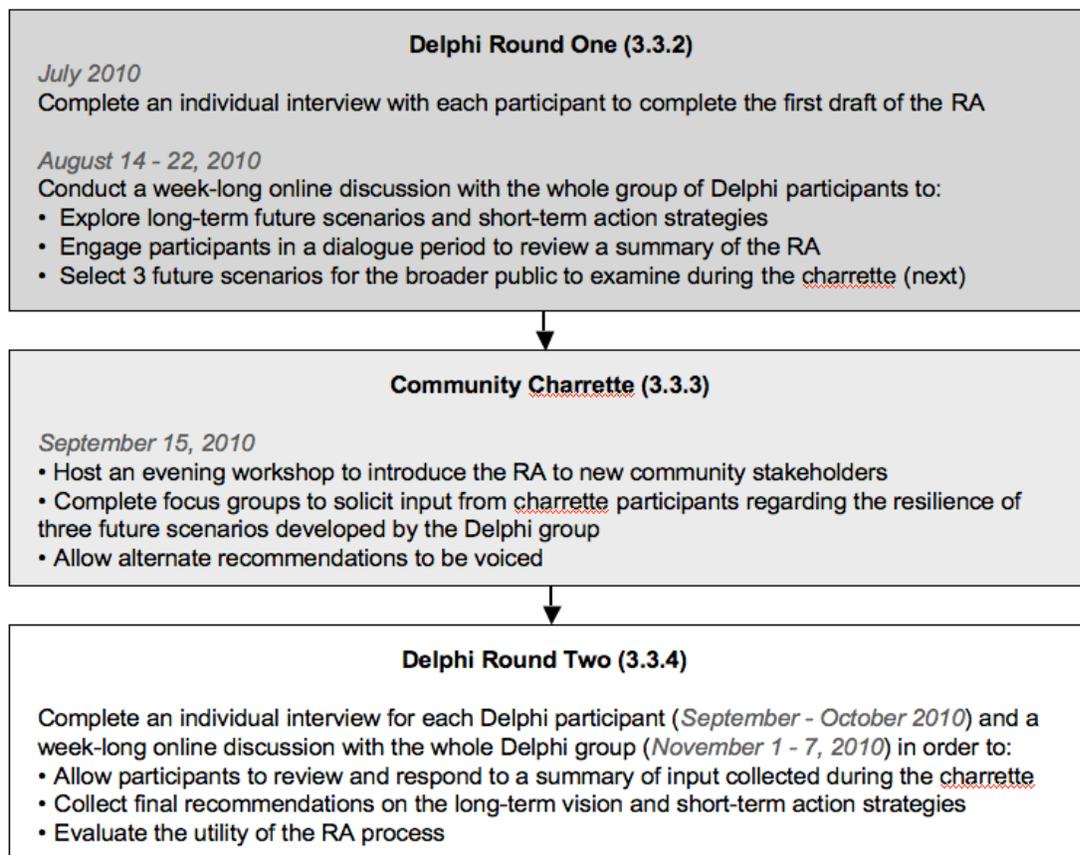


Figure 5 - Summary of key steps used to pilot and evaluate the RA

3.3.1 Secondary literature review

Secondary documents relevant to the community's development and resilience were reviewed to develop a baseline understanding of Huntsville's historical context and current state. Preliminary research was performed before primary information collection commenced. While data was collected from the Delphi exercise and charrette, additional literature research was performed to triangulate and confirm evidence. Secondary documents include reports regarding local economic development, environmental concerns, social sector, historical documents, operational and meeting minutes, and specific strategic plans.

Key secondary documents used to construct the RA case report included - numbers in parentheses refer to the number of documents reviewed per category:

- Local reports, plans, and committee meeting minutes from the Town of Huntsville (12)
 - Reports / memos specific to Huntsville's sustainable community plan (7)
- Local history books (3) and Muskoka Heritage Foundation DVD "Life on the Edge"
- District Municipality of Muskoka reports and website (2)
- Reports, plans, and memos from local community organizations (6)
- Newspaper articles (3)
- Federal reports and statistics (2)
- National history books (2)
- Other sources (5), e.g. International Monetary Fund, International Institute for Sustainable Development, United Nations Development Programme

One of the drawbacks of secondary documents is bias the original author may impart when subjectively reporting events and experiences. For example, the author's personal worldview, values, and assumptions can slant the narrative rather than providing a balanced account (Patton 2002). Such inconsistencies were ameliorated to some extent through triangulation with primary information sources and additional secondary literature, where possible.

3.3.2 Delphi round one

The Delphi technique provided a structured communication framework to improve dialogue between diverse participants, including experts, decision-makers, and laypersons, that can be impeded by

conventional group techniques (e.g. brainstorming sessions, round-table meetings) (Landeta 2006). Participant anonymity was maintained to enhance information-sharing, dialogue, trust, transparency, and acceptance of project outcomes (Linstone and Turoff 2002, Dalkey and Helmer 1963). Delphi usually has a distinct advantage over individual expert opinion without group input (e.g. surveys) and traditional face-to-face group processes (e.g. group interviews, conferences) under the following conditions:

- There is incomplete knowledge and decisions must be made under a degree of uncertainty (e.g. unfeasible to wait for complete understanding);
- Addressing the problem requires exploration of many issues; and
- Best available information is from the subjective judgment of knowledgeable individuals on a collective basis.

(Landeta 2006:478)

There are no universally accepted rules for applying the Delphi technique. Three generally accepted practices were incorporated into the Delphi exercise for the pilot RA:

- Participants were selected because of their expertise in the topic being examined;
- The researcher served as a moderator that controlled dialogue between participants by limiting extraneous information and helping to protect participant anonymity; and
- A mixture of different techniques was used to collect information.

(Skulmoski et al. 2007, Alder and Ziglio 1996).

A two-round Delphi exercise was selected for this study. In their review of application of the Delphi technique, Linstone and Turoff (2002) observed that at least two Delphi “rounds” should be completed to allow participants to individually respond to a set of questions, review each other’s responses and engage in an anonymous dialogue period. For this study, each Delphi round was comprised of an interview for each participant and one online group discussion. The interactive nature of interviews provided ample opportunity for the interviewer and interviewee to seek clarification and elaboration until the desired information was collected (Kvale and Brinkmann 2009, van Dijk 1990). Face-to-face interaction also helps the researcher build good rapport, which can encourage higher quality participation and help sustain commitment to the project (Berg 2001).

The online discussions provided a forum for Delphi participants to review anonymous responses to the interview questions and engage in dialogue by posting comments identified only by participant

ID#. Participants accessed the website using an individually assigned username and password. Requiring participants to provide typed comments for the online discussions could lower engagement due to perceived time, effort, and computer skills. Effort was made to ameliorate this issue by ensuring participants were aware of participation requirements, collecting data over a tight time frame, making the online forum user-friendly, and entering participants in a draw to win a \$125 restaurant gift certificate.

i. Confirming suitability of the Delphi methodology for the case community

An email was circulated to municipal councillors and staff - both groups were intended users of the RA - to seek feedback regarding the appropriateness of the Delphi methodology for the case community. The email (Appendix 1) summarized the project and asked respondents whether they thought the following tactics would work well: participant anonymity, 6-8 hour total commitment, using an online forum for dialogue, and offering a restaurant gift certificate as an incentive to participate. Two councillors and one municipal staff member responded to the questions. They asked for assurance that the online discussion website would only be accessible to project participants, but otherwise were supportive of the Delphi design. A meeting held with the Huntsville Unity Plan Task Force before the study began was also used to discuss these questions and positive feedback was received.

ii. Selecting Delphi participants

Eligible participants were defined as community stakeholders over age 18 that were able to influence or were affected by community planning decisions (Involve 2005). Participants also had to be knowledgeable about historical or current aspects of community development from a social, economic, and/or environmental standpoint. These knowledgeable individuals are called *key informants* (Alder and Ziglio 1996). Patton (2002:321) cautions that key informants present limited and biased perspectives and selecting key informants can arouse hostility from those not selected.

Purposive sampling using the snowball sampling method was used to identify participants until the saturation point was reached (e.g. additional interviews added little new information) (Kvale and Brinkmann 2009). The researcher identified a small number of individuals with the required characteristics and then asked these people to nominate others who qualify for inclusion, who in turn identified others (Cohen et al. 2004). This is an acceptable technique since findings from this study were not directly generalized across a broader scale (Berg 2001).

There are drawbacks to the snowball method. This sampling strategy does not provide a statistically representative sample and unintended bias may be present within the sample. Since the sample is constrained to participants' social networks, low or high abundance may be observed in participant characteristics, such as gender, education levels, or socioeconomic status (Patton 2002). Finally, the participant nomination process may be controlled by traditionally dominant group(s) in the community. Participation endows power to speak and inherently includes expressions of power dynamics (e.g. participants are more likely to nominate colleagues with similar view points). Inequities of power and privilege between the researcher and respondents and among various kinds of respondents will likely be present in the sample (Schwandt 2007).

The Huntsville Unity Plan Task Force and Town Council were the initial participant pool that began the snowball sampling process. This group included Town council members and community and organizational leaders engaged in drafting Huntsville's sustainable community plan. A presentation was performed by the researcher at a televised town hall meeting to introduce the project and invite participation. A follow-up invitation was sent via email. Those interested in participating were reminded of the need to commit to the two-round Delphi exercise, that their identity would be kept anonymous to the extent possible, and they were free to withdraw from the project at any time. Individuals who decided to participate were asked if they could recommend anyone else that would provide insight on the community's social, economic, and/or environmental aspects related to local resilience. Good triangulation was achieved as many participants received multiple nominations from other community members.

Of 36 people contacted, 28 people agreed to participate and 22 people were accepted into the Delphi group. Two people were excluded due to offering participation after the first interview round was completed. The other four people were excluded because the saturation point had been reached and/or existing participants had already been interviewed from the excluded person's interest group affiliation (e.g. community organization or Town council). Descriptive characteristics were documented, such as gender, education, and employment, which are presented in aggregate in Chapter 4. Participant consent forms are provided in Appendix 1.

ii. Delphi interview 1

All Delphi participants were interviewed for the first time between July 2 - 29, 2010. The researcher conducted 21 interviews in-person and one interview via telephone. Notes were taken during the

interviews and all interviews were audio-recorded. All interviews were scheduled at the convenience of the interviewees and occurred in a private setting.

The interview question set inquired about key building blocks of community resilience distilled from the Resilience Alliance RA and other literature (Ch.2). A semi-structured interview strategy that asked open-ended questions was used to encourage participants to elaborate and describe their opinions (Kvale and Brinkmann 2009, Flick 2002, Krueger and Casey 2000). It is possible, however, that the question structure impacted participants' responses (e.g. by highlighting certain community issues and not others). This impact would be more prevalent if closed-ended questions were used rather than open-ended questions. The interview began with broad questions and progressed to more specific questions (Kvale and Brinkmann 2009). Questions were asked in a consistent order and the researcher was allowed to digress to probe for greater clarification or elaboration. Visual aids were used to encourage high quality responses.

A pilot study was performed to test the interview question set (Skulmoski et al. 2007). Two municipal staff members who did not participate in the study reviewed the interview question set. Both individuals were permanent Huntsville residents who had lived in the community for over 20 years. The question set was also reviewed by two of the researcher's professional colleagues who are experienced with community consultation. Finally, the full interview was tested on two volunteers from outside Huntsville to gauge timing and clarity of questions. The questions and visual aids were adjusted based on input from the pilot study. A small pilot sample cannot fully represent a diverse population (Landeta 2006). Potential still remained for questions to be misunderstood. In-person interviews were selected to help overcome this limitation by allowing participants and the researcher to ask for clarification.

iii. Delphi online discussion 1

The first online discussion was held August 14 - 22, 2010. Of the 22 original participants, 20 contributed comments to the online discussion. The Delphi group was sent three email reminders before and during this period to encourage participation. An additional day was granted for several participants who had not accessed the website during the allotted time. The online discussion allowed the Delphi group to view a summary of the RA draft, which was created by the researcher based on information contributed by Delphi participants. The website provided links to ten areas of the RA covered during the first interview:

1. Community strength (fairness, cooperation, seeking improvement)
2. Leadership (formal and informal)
3. Overall community resilience
4. Support for innovation
5. Cycle of community change (adaptive cycle)
6. Top-priority issues (environmental, economic, and social)
7. Root causes of the top-priority issues
8. Important connections between Huntsville and the outside world
9. Long-term future scenarios (25 years in the future)
10. Short-term action strategies to help shape a desirable future

Each section summarized commonalities and divergent perspectives or counter arguments from the interview responses. Participants were able to engage in anonymous dialogue regarding information in the draft RA and were asked to respond to the following discussion topic regarding section 9 and 10 of the RA:

“Please vote for your preferred positive scenario of Huntsville 25 years into the future and list the top-priority action strategies that need to happen to help make that future a reality.”

Participants were informed that the three most popular scenarios identified during the online discussion and first interview would be presented at a community charrette, which is described in the next section. Figures 6-8 summarize the three scenarios. The most popular positive scenarios were scenario A (identified by 36% of participants) and scenario B (identified by 50% of participants). The most commonly identified negative image was scenario C (identified by 59% of participants).

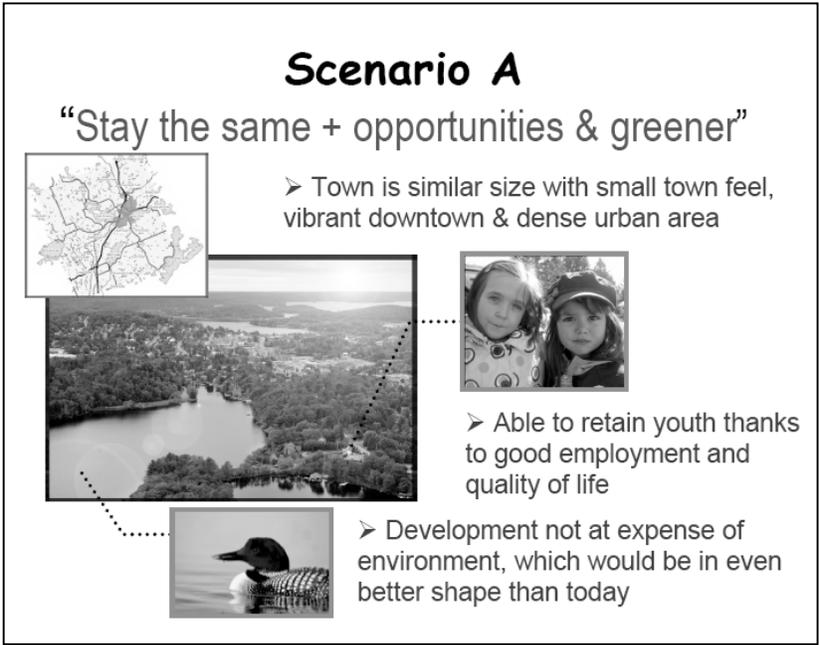


Figure 6 - Scenario A identified by Delphi participants as the most popular positive long-term vision of Huntsville (excerpt from case report)

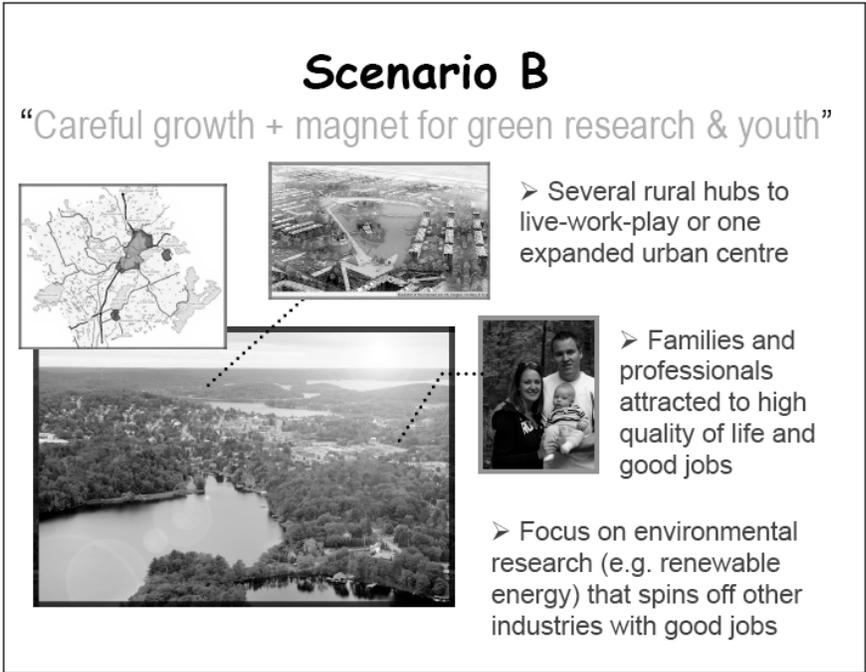


Figure 7 - Scenario B identified by Delphi participants as the second most popular positive long-term vision of Huntsville (excerpt from case report)

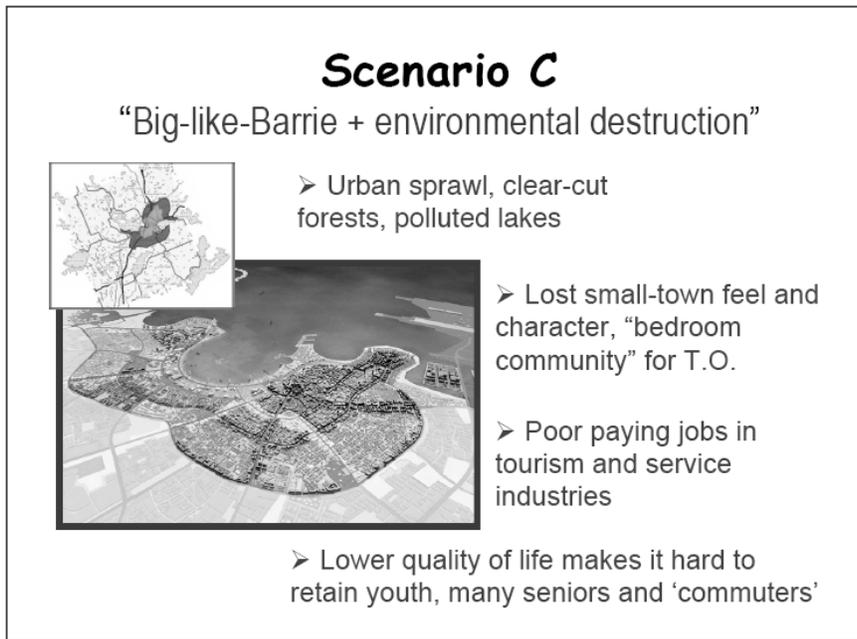


Figure 8 - Scenario C identified most often by Delphi participants as a negative long-term vision of Huntsville (excerpt from case report)

3.3.3 Community charrette

A *charrette* is a short but intensive collaborative effort to engage residents and other interested groups, often working with professionals, to develop a plan for a specific problem (Kelly 2010, Sanoff 2000). Generally, the audience is divided into sub-groups that present their synthesized ideas back to the full audience to spark further dialogue. Charrettes are one of the best tools for developing creative proposals to achieve multiple and often competing goals simultaneously and in a compressed period of time (Seymoar 2004). Plummer and Armitage (2007) found that following a Delphi exercise with a separate workshop attended by new participants offered further insight and verified the high importance of certain issues.

A charrette was used in this research to allow a new set of community members, besides the Delphi participants, to contribute to the RA. The purpose of the charrette was to learn what the attendees thought about the resilience of the three future scenarios (25 years later) developed by the Delphi group and hear recommended action strategies to help shape a resilient and sustainable Huntsville. Focus groups were used to concentrate opinions during the charrette. The charrette was held from 7-9 pm Wednesday September 15, 2010, at the University of Waterloo Summit Centre for the Environment near downtown Huntsville. Only one charrette could be held due to limited

finances, time, and volunteer support. Hosting several charrettes on different evenings and at different locations may have encouraged more people to participate.

The charrette agenda involved:

- 20 minutes for participants to examine large posters of the three most popular future scenarios identified by the Delphi group (Figures 6-8);
- 10 minutes for introduction by the researcher to the project and charrette purpose;
- 45 minutes for focus group discussion - participants voluntarily joined one of the five focus groups: three groups examined scenario A and two groups examined scenario B. Scenario C was used in all groups to help spark discussion and comparison;
- 20 minutes were allotted for one volunteer from each focus group to share key points from his / her focus group discussion with the full audience;
- 20 minutes was planned for open floor discussion with the full audience (insufficient time remained to perform this activity during the actual charrette); and
- 5 minutes for closing remarks offered by the researcher.

The following tactics were used to create a comfortable dialogue space within the charrette (Berg 2001, Krueger and Casey 2000, McKenzie-Mohr 1999, Krueger and King 1998):

Limited focus group size - A maximum quota was placed on the number of participants based on the number of volunteers that agreed to help run the focus groups. Each focus group required two volunteers - one moderator and one note-taker - and preferably 6-8 participants (King and Krueger 1998). Nine community members and one colleague of the researcher volunteered to help run focus groups. Thus, five focus groups were planned with eight participants and two volunteers each. A total of 40 seats were made available for participants, who were accepted on a first-come-first serve basis (sampling protocol described later).

Community volunteers performed focus group moderation and note-taking - This tactic was intended to remove the researcher from the focus groups and allow capable community members to contribute to the project. Researcher bias was still possible since the charrette was part of a research project, which may cause some participants to alter their opinions. Using volunteers was an appropriate option based on Krueger and King's (1998:12) criteria for involving community volunteers in focus group research. An orientation session was held one hour before the event to

familiarize volunteers with the event schedule and techniques to be used in the focus groups. This information was also emailed to volunteers two days beforehand.

Since two community volunteers failed to attend the charrette, the researcher had to moderate one focus group and a colleague of the researcher had to moderate and take notes for one focus group. Although participants and volunteers were informed that each focus group should have eight participants, uneven distribution occurred that ranged from 6-13 participants per group. Since the researcher had to unexpectedly moderate a focus group, she did not oversee the size of each focus group, as had been intended.

Extended focus group technique - Each focus group moderator distributed a one-page double-sided questionnaire for each participant to write his or her responses to the four questions before discussion began (Krueger and Casey 2000). Though focus groups allow participants to share opinions and engage in collective brainstorming (Berg 2001, Krueger and Casey 2000), the group setting can have a negative impact on individual responses (McKenzie-Mohr and Smith 1999). For example, power dynamics may cause some participants to contribute little or alter their personal opinions in a group setting (Krueger and Casey 2000). The written questionnaire allows participants to provide input even if they do not feel comfortable verbally sharing. The volunteers completed written questionnaires once the focus groups were finished. Responses on the questionnaires were compiled along with notes taken by each group's note-taker.

Reduce public frustration and unrealistic expectations - Sanoff (2002) cautions that effective guidance is required to reduce the risk of public frustration regarding what the research project can achieve. Information letters sent before the event and the charrette introduction reiterated the purpose of the event - to collect opinions and suggestions to help complete the RA and *potentially* improve Huntsville's sustainable community plan. It was stressed that the ability to change the sustainable community plan lay in the hands of Town Council, which would consider the RA recommendations. The charrette itself was a valuable process, as it provided new perspectives on local conditions that can contribute to informed decision-making.

i Question set for focus groups

The focus group question set was piloted by asking charrette volunteers to review the questions and suggest revisions two days before the event. The questions were also reviewed during the volunteer

orientation period. The volunteers did not represent a very diverse sample, since they shared relatively similar education levels, age group, and occupations, so potential remained for participants to misunderstand the questions. Thus the interactive focus group method was useful, as it allowed participants to seek clarification. Four open-ended questions were asked that progressed from general to more specific and complex questions:

1. Do you think your group's positive future scenario is actually sustainable? How come?
2. Do you think the positive future scenario is very resilient? How come?
3. What actions could reduce Huntsville's resilience?
4. What are the most important 'stepping-stones' that need to be put in place in the short-term to increase the resilience of your positive future scenario?

ii. Identifying charrette participants and volunteers

Participants had to be 18 years or older and were self-selected through open invitations circulated in the community via email and flyers (Appendix 1) posted in public spaces and at various organizations. Delphi participants were asked to distribute the charrette invitation to their social networks. Flyers advertising the event were posted at several athletic clubs in an effort to attract young adults under the age of 30, which was a missing demographic in the Delphi sample. Incentives to participate included free light dessert, refreshments, and entry into a draw for a \$25 restaurant gift certificate. All who expressed interest in attending the charrette were emailed a brief information letter and consent form (Appendix 1).

Self-selection sampling was employed, which means findings based on this sample cannot be generalized to a target population (Buddenbaum and Novak 2001:75). Buddenbaum and Novak (2001:75) caution that, as a gauge of public opinion, findings from a self-selected sample can be more misleading than those based on convenience samples, such as "person-on-the-street" interviews. Self-selection is a widely used and accepted practice to locate participants for focus groups or experiments (Buddenbaum and Novak 2001:76). The charrette was more likely to attract people already interested in civic engagement, familiar with the issues under study (e.g. sustainability and development issues), and have the self-confidence to share their opinion openly. These sources of bias were acceptable because the charrette was not intended to represent overall public opinion.

3.3.4 Delphi round two

The second Delphi round was completed after Delphi participants reflected on input gathered during the community charrette (3.3.3). The purpose of the second Delphi round was to: (1) collect final opinions from Delphi participants for the RA report and (2) evaluate the effectiveness of the RA process.

i. Delphi private interview 2

Interviews occurred from September 22 - October 8, 2010. Of the 22 original Delphi participants, only one person did not complete the final interview. The researcher completed 18 interviews in-person, 1 via phone, and 2 via email. Notes were taken during the interviews and all in-person and phone interviews were audio-recorded.

Opinions expressed during the focus groups at the community charrette (3.3.3) were summarized into a one-page double-sided sheet (Appendix 1) that was reviewed with each Delphi participant during the interview. The interview followed the structure described for the first Delphi round (3.3.2). The questions focused on:

- The utility of the first online discussion;
- Whether public opinion from the charrette changed the interviewee's preferred future scenario and associated action strategies;
- Whether the participant experienced any personal change that he / she at least partially attributed to involvement in the RA; and
- Whether the RA would be a valuable process for other communities and empowering for future participants.

Each participant was given the opportunity to review his / her interview summary. The interviews were then condensed for the online discussion.

ii. Delphi online discussion 2

The second online discussion occurred from November 1 - 7, 2010. This time frame was selected to fit Delphi participants' schedules and to occur after the municipal election - to reduce off-topic political discussion. Of the 22 original Delphi participants, 20 contributed comments to the second online discussion. The purpose of this discussion was to explore how to encourage people to get

involved in local sustainable community planning and evaluate effectiveness of the RA. Participants were informed that their suggestions could help improve community participation related to Huntsville's sustainable community plan - called the Unity Plan.

Participants were asked four questions:

1. Have you decided to participate in implementing the Unity Plan?
2. What discouraged you about taking part in the Unity Plan?
3. What encouraged you about taking part in the Unity Plan?
4. Did participating in the RA affect your decision to help out with the Unity Plan?

Participants were informed that if they did not feel comfortable posting their response on the website, even though names remained anonymous, responses could be emailed to the researcher. The website also summarized ideas generated during the second interview on how to help the community support sustainability and dialogue was encouraged on this topic.

3.4 Evaluation methodology

The criteria set described in 2.4 was used to evaluate the effectiveness of the pilot RA based on participant feedback from the second Delphi round, reflection by the researcher, and literature review. Formative evaluation was used to examine the effectiveness of the process used to perform the pilot RA and improve how the RA is conducted. *Formative evaluation* examines program implementation to provide program managers with advice to improve the program to make it more dependable and effective (Gamble 2008, McDavid and Hawthorn 2006). Formative evaluation can be used to determine whether a program is unfolding as planned, identify obstacles or unexpected opportunities, and identify corrections to facilitate the program's success (Mathison 2005).

The evaluation also included elements of developmental evaluation. While the goal of formative evaluation is to fine-tune a model for application across different cases, *developmental evaluation* focuses on integrating ongoing learning to adapt to changing conditions (Patton 2011). Developmental evaluation is better suited for complex problems where uncertainty is high and there is not sufficient knowledge to know what to do (Westley et al. 2008). This type of evaluation supports innovation, tracks learning, and provides feedback to facilitate the program's evolution (Patton 2011). From the developmental evaluation perspective, this thesis:

- Remained open to innovative approaches to improve the RA process;

- Integrated learning that emerged during the formal evaluation; and
- Was intended to be part of an ongoing process of innovation where both the path and destination are evolving.

(Gamble 2009)

From the researcher's perspective, the RA template will likely never be a fully standardized and universally applied 'product'. The RA methodology is expected to remain in-flux as innovative approaches are incorporated and new problems are confronted.

3.5 Data management

Data management, which refers to how data were recorded and organized, varied according to the data collection method.

For the Delphi exercise, data were derived from:

- Researcher's notes on secondary information sources (literature);
- Researcher's notes taken to capture key points from interviews; and
- Typed responses contributed by participants during the online discussions.

For the community charrette, data were derived from:

- Notes taken by each volunteer note-taker to summarize participants' verbal responses to the focus group questions; and
- Written responses to the questionnaire completed by each participant and volunteer.

Written notes from the Delphi interviews and charrette focus groups were transcribed into typed format using Microsoft Word software. All Delphi interview notes were transcribed within 48 hours or less after completing the interview.

3.6 Data analysis

To evaluate the effectiveness of the RA, data were drawn from: (i) participants' responses during Delphi round two regarding RA effectiveness; and (ii) reflection by the researcher on designing and conducting the RA. Qualitative inductive content analysis was performed to condense and interpret information to complete the pilot RA and evaluate the effectiveness of the process used to conduct the RA. Patton (2002:463) defines *content analysis* as a process to "analyze the core content of

interviews and observations to determine what is significant and to identify, code, classify, and label the primary patterns in the data.” Adhering to a coding scheme increases trustworthiness or validity of the study (Hsieh and Shannon 2005).

During the *descriptive phase* of content analysis, data were organized into topics to identify emergent patterns (Krueger and Casey). All interview notes and the researcher’s reflection notes were read repeatedly (Tuesch 1990). Open coding was used to derive categories in the data (Hsieh and Shannon 2005, Mayring 2000, Miles and Huberman 1994, Strauss 1987). Open coding allowed names for categories to flow from the data without using preconceived categories (Kondracki and Wellman 2002). An initial list of code labels, called a coding index, was created after reading all interview notes once. During subsequent readings, coding was performed systematically using the coding index. New categories were created as necessary until information was exhausted (Patton 2002). *Indigenous typologies* emerged directly from participants’ expressions, while *analyst-constructed typologies* were created when the researcher named patterns not explicitly articulated by participants (Marshall and Rossman 2010, Yin 2009, Patton 2002).

Using Microsoft Word software, quotes were assembled into colour-coded theme tables that corresponded to each code category. The analyst worked back and forth between data and codes to verify the meaningfulness and accuracy of the categories and quotes placed in each category. The trustworthiness of the coding system was judged based on three criteria:

- Internal homogeneity: extent to which data that belong in a certain category hold together
- External heterogeneity: extent to which differences among categories are bold and clear
- Completeness:
 - Internal / external plausibility: categories appear consistent and when viewed externally the category set comprise a whole picture
 - Set is reasonably inclusive of data that exists: few unassigned gaps and the categories capture the facets of the research problem
 - Set is reproducible by another competent judge: categories make sense and data have been appropriately arranged in a coding system that fits the data

(Patton 2002:466)

The *interpretive phase* of analysis builds on the descriptive phase by “attaching significance to what was found, making sense of findings, offering explanations, drawing conclusions, extrapolating

lessons, making inferences, considering meanings, and otherwise imposing order on an unruly but surely patterned world (Patton 2002:480).” In qualitative inquiry, the analyst presents an argument for substantive significance by presenting findings and conclusions for readers to make their judgments about significance (Patton 2002). Arguments for substantive significance are presented in Chapter 4 by:

- Examining rival explanations;
- Accounting for disconfirming cases or data irregularities; and
- Exploring the extent to which findings are consistent with other knowledge (confirmatory significance) or whether the findings break new ground (innovative significance).

(Patton 2002:467)

Verbatim quotations from participants were selected according to utility, salience, uniqueness, and credibility (e.g. triangulated with other respondents and literature) (Patton 2002).

It is important to note that both the descriptive and interpretive phases of analysis are presented together in Chapter 4. This form deviates from traditional thesis format where description and analysis appear in separate chapters. Presenting the descriptive findings followed by interpretations for each evaluation criterion greatly enhanced the flow of the document. Both thesis questions (1.1) are addressed in Chapter 4. A summary of findings relevant to each thesis question is provided in the concluding Chapter 5.

3.6.1 Information verification

Several activities were used to increase the probably that credible findings would be produced: systematic data collection, triangulation, member-check, prolonged engagement, and reflexive journaling.

Systematic data collection - For results to be reliable and credible, the case study should follow a set protocol that could be reasonably reproduced by another competent researcher (Yin 2009). Systematized procedures for data collection were created before the study began to reduce the effect of the researcher on study outcomes. For example, a script was created for interview 1 and interview 2 of the Delphi exercise so that questioning was systematic and incoming data could be efficiently organized. Flexibility was built into this process, using a semi-structured interview style, to allow the

inquirer to diverge from the script to probe for deeper understanding. Thoroughly reporting steps taken to collect and analyze information generated a ‘track record’ to facilitate future iterations of this case study.

Triangulation - Multiple sources of evidence were used to maximize the validity and quality of the case study (Creswell 2009). Triangulation means that information gained from one source is checked against different sources, methods, investigators, or theories (Denzin 1978, Stake 2005). For this research, triangulation was performed by comparing responses between different participants, secondary documents, and by using different methods (e.g. interviews, focus groups). Multiple information gathering methods, which drew information from multiple sources, were selected to facilitate triangulation. Each method has strengths and weaknesses (Krueger and Casey 2000). For example, though interviews allow exploration of thoughts and opinions, interview responses can be distorted by the interviewee’s emotional state, recall error, reactivity of the interviewee to the interviewer, and self-serving responses (Patton 2002:306). Document analysis can help the interviewer ask appropriate questions, but the quality and completeness of secondary documents can be highly variable (Patton 2002:307).

Member-check - Member-check means that each participant is given the opportunity to review the data and interpretations and provide feedback to the researcher and, potentially, to other participants (Lincoln and Guba 1985). This review process can produce insightful information, enhances the accuracy of the case study, and reduces the likelihood of false reporting (Kvale and Brinkmann 2009, Yin 2009).

Member-check was woven throughout the Delphi exercise:

- Online discussions allowed each participant to review his / her interview summary, comment on others’ responses, and see how the RA was taking shape.
- After the Delphi exercise was completed, each participant was asked to review their summary for both interview 1 and 2. Each participant received his / her summary via email.
- All Delphi participants were emailed the final RA report and asked to recommend improvements before the document was released to the Town Council and general public. Numerous corrections were made to improve the clarity and utility of the report, including creation of a separate ‘newsletter style’ synopsis of the RA report.

Member-check was also built into the charrette. During the last five minutes of the focus group period, each group moderator was directed to share an oral summary of key discussion points and invite participants to provide corrections. In addition, points summarized by note-takers could be checked against individual responses recorded on the questionnaires.

Prolonged engagement - Data collection from the Delphi exercise and charrette occurred from July - November 2010. The researcher resided in the community for over a month while collecting primary and secondary information. Spending a prolonged amount of time in the case community helped the researcher understand the local context and culture, build trust, and test for misinformation introduced by the researcher or participants (Lincoln and Guba 1985). Completing the pilot RA entailed a sequential data analysis process that required considerable time and numerous iterations of re-reading participant responses, checking context, and returning to secondary literature to ensure quotations and literature excerpts were not misconstrued (Yin 2009).

Reflexive journaling - The researcher performed multiple roles in this study, as the designer, conductor and evaluator of the RA, which provided opportunities for personal bias to warp findings. In addition to the checks described above, the researcher used a reflective journal to keep a written record of how key decisions were made during methods design, fieldwork, analysis and interpretation (Janesick 2004).

3.6.2 Bias considerations

A reflexive stance is needed to respond to and account for the impact of the researcher's perspective on the research design (Maulterud 2001). The researcher's critical self-reflection helps convey authenticity and trustworthiness. As stated by Cohen and Crabtree (2006), "understanding something about the position, perspective, beliefs and values of the researcher is an issue in all research, but particularly in qualitative research where the researcher is often constructed as the 'human research instrument'." Reflexivity was employed in this study by:

- Identifying the intended audience of the thesis and how this selection could impact how and what is reported (1.2);
- Acknowledging the researcher's values, perspective, and typical pathways for constructing and understanding knowledge (1.5);
- Considering the influence of data collection methods on participant responses (3.3, 3.6.1);

- Reflecting on how participants know what they know (3.6.1);
- Considering the influence of data analysis methods on study findings (3.6);
- Keeping a reflective journal to detail how research design decisions were made (3.6.1); and
- Acknowledging the social-political context in the case community during the study (below).

(Koch and Harrington 2002, Patton 2002)

Three additional considerations are offered regarding the researcher's perspective. First, the researcher lacked insider affiliation, which could otherwise have biased the researcher's own perspective and understanding (Coghlan and Brannick 2001, Nielsen and Repstad 1993, Alder and Alder 1987). The researcher was a newcomer in the case community; had no pre-existing acquaintances in the community; and had never visited, worked, or resided in the community before research commenced. Second, the researcher periodically withdrew from the setting and periodically realigned her perspective with those of other groups (Alder and Alder 1987). The latter required talking with academic and work colleagues, participants within the study, and other stakeholders to illuminate new ways of seeing (Nielsen and Repstad 1993). Third, the researcher's presence as a change agent could influence the phenomenon being studied (Adler and Adler 1987). This can serve as a benefit if it is not manipulative and offers opportunities to assist decision-making and/or explore linkages between theory and practice and (Holian 1999).

Finally, several aspects of the social-political context in the case community shaped this research to some degree:

- ***University of Waterloo research facility in the case community*** - There was excitement in the community about the presence of a well-renowned post-secondary institution. This is believed to have impacted commitment to the study. It may have contributed to the loyalty of Delphi participants (91% remained engaged in the project throughout the 5-month data collection period) and excellent turnout at the community charrette. Hype regarding the research may have heightened potential for participants to tailor their responses towards what they believed the researcher was seeking. The fact the University of Waterloo Centre was an "environmental studies facility" might have swayed responses in that direction. If this was the case, people could have gravitated towards environmental concerns to a greater degree or responded in a polarized way, e.g. disagreeing with emphasis placed on the environment.

- ***G8 world leaders conference*** - The 2010 G8 meeting was hosted in the case community weeks before commencement of this study. The meeting and related media coverage potentially impacted the attitude of participants and the issues they brought forward during the study. Participants did mention the G8 and international relations during interviews. Participants may have focused the RA on different issues if the project had been completed before or several years after the G8 due to less media focus on social issues.
- ***Release of the case community's sustainable community plan*** - The Town released the final draft of its sustainable community plan midway through this study. The plan's release was accompanied by media coverage and a community event. The plan's release may have provided opportunities for participants to remain engaged in topics related to resilience and sustainability between the periods of direct engagement with the RA. It is also possible that cynicism expressed by some groups degraded participants' regard for the sustainability plan and, by extension, the RA. During several Delphi interviews, participants had to be reminded that the RA was separate from the sustainable community plan and was not commissioned by the Town Council. Even negative emotions could help expose novel perspectives and knowledge to deepen the RA.
- ***Municipal election*** - The 2010 municipal election occurred during the second round of the Delphi exercise. Since the researcher had advance notice of this event, all interviews were completed two weeks before the election and the online discussion occurred after the election. This was done to try to prevent the RA from being taken over by 'political voices', particularly during the online discussion. Participants may have focused the RA on different issues if the RA was completed in a non-election year. Due to the election, certain issues profiled by the media may have come to mind more readily for participants. It is also possible that some participants may not have volunteered to participate if not for the 'boom' in discussion about community planning.

Chapter 4

Key Observations and Findings

The following criteria (2.4) were used to evaluate the effectiveness of the process used to conduct the pilot resilience assessment (RA):

- Criterion 1. Data collection provided sufficient information to complete the RA
 - Key question: *“To what extent did the prescribed data collection process address the questions posed in the Resilience Alliance (2010) RA framework?”*
- Criterion 2. Diversity of stakeholders participated
 - Key question: *“To what extent did the sampling strategies collect a sufficient diversity of participants?”*
- Criterion 3. Participatory processes contributed to participant empowerment
 - Key question: *“What personal changes or actions did participants report that they felt involvement in the RA at least partially contributed to?”*
- Criterion 4. RA process would be useful for other communities
 - Key question: *“What strengths and weaknesses did participants and the researcher identify in the participatory RA?”*

This chapter presents key observations, findings, and recommendations that emerged during the evaluation. Information to examine each criterion was drawn from participant feedback collected during the second Delphi round (interview and online group discussion), reflection by the researcher, and literature review. Since all participants' names were confidential, a participant number follows each quotation, e.g. #D21 refers to Delphi participant number 21.

4.1 Criterion 1 - Data collection process provided sufficient information

The case report in Appendix 3 provides a complete synthesis of the RA results. Criterion 1 focused on one key question: *“To what extent did the prescribed data collection process address the questions posed in the Resilience Alliance (2010) RA workbook?”* Prominent information gaps and obstacles are addressed for each of the five steps of the pilot RA.

4.1.1 RA Step 1: Describing the system

Obstacle 1. Scaling up the main issues - The Resilience Alliance workbook is strongly oriented

towards natural resource problems rather than toward community planning. Focusing the RA on one or two main issues, as is done by the Resilience Alliance, resulted in a narrow focus less practical for broad community planning. Focusing the RA on parts of the system related to one community issue, as is done in the CCE (2000) RA framework, seemed to oversimplify community planning problems, which inherently involve many sectors.

The RA template was intended to provide: a baseline assessment that looked at broad themes and trends, an understanding of the system as a whole, and recommendations for several key issues. To follow-up and build on this baseline RA, targeted resilience studies could be completed, similar to the CCE (2000) template, to focus on specific areas in finer detail. To select main issues as the focus of the pilot RA, Delphi participants were asked to identify top-priority problems Huntsville must address to become a sustainable town. Three issues mentioned by the largest number of participants were selected (Table 5). The high importance of these issues was reinforced during the online discussions, charrette, and in Huntsville’s sustainable community plan.

Table 5 - Three community issues and desirable attributes used to focus the RA

<p>Main Issue 1. Grow the creative economy to provide more year-round well paid jobs</p> <ul style="list-style-type: none"> ▪ Attract and support industries in the fields of information, knowledge, technology, environmental research, and creative businesses (e.g. innovation, Arts, culture, design) ▪ Create jobs that provide a good quality of life that attracts youth and young families ▪ Reduce vulnerability to economic downturn
<p>Main Issue 2. Land-use planning to protect the environment</p> <ul style="list-style-type: none"> ▪ Maintain and enhance the natural environment since quality of life and the economy depend on the environment ▪ Enforce environmental regulations and proactively shape land development through planning ▪ Pass all development proposals through a ‘filter’ that considers overall sustainability of the proposal
<p>Main Issue 3. Municipal leadership committed to sustainability and community engagement</p> <ul style="list-style-type: none"> ▪ Commit to sustainability to help improve community awareness and attitudes ▪ Use inclusive community engagement and collaborative decision-making where the community is an important partner rather than just an audience ▪ Be transparent and accountable to citizenry by clearly outlining the decision-making process and encouraging input from citizens that has potential to influence decisions (e.g. provide easily accessible online documents that detail the decision-making process)

To answer the assessment question “*Resilience of what?*” the system description focused on key components of the Huntsville social-ecological system (herein referred to as the Huntsville SES), which were relevant to the three main issues. These components included the following larger systems and sub-systems of the Huntsville SES:

- Local and regional economy;
- Local and regional natural environment;
- Local and regional population growth and related land-use planning; and
- Local governance.

Information Gap 1. Assessing general resilience - Six resilience characteristics were examined that pertained to the current status of general community resilience and the three main issues. The resilience characteristics were selected based on literature review to suit community application. Delphi participants shared their thoughts on each characteristic and recommended action strategies to improve community resilience.

Resilience characteristics examined in the system description:

1. Important natural resources the community depends upon;
2. Community's ability to work towards a common goal and treat others fairly (two key building blocks of community cohesion);
3. Community's efforts to improve and learn from experience;
4. Community support of innovation;
5. Community engagement in decision-making; and
6. Community's ability to bounce back from adversity, adapt to change, and challenge the status quo (a summary of overall community resilience).

The resilience characteristics listed above are not exhaustive. These characteristics do not match the general resilience characteristics outlined by the Resilience Alliance (2010:35). In the future, methods to assess general resilience features at the community scale should be explored, as they provide important information about system dynamics.

In the pilot RA case report, the need to monitor general resilience when making management decisions was posed as a 'next step'. Decision-makers and managers were directed to address and revisit two questions:

1. There may be completely novel shocks with impacts that are yet unknown - are there parts of the system that show low / declining levels of the general resilience features?
2. Could specific management actions unintentionally erode general resilience?

These questions should be addressed in greater detail in future RA case studies and future iterations of the Huntsville RA. The case report also offered eight recommendations to strengthen community resilience that focused on general resilience (adapted from Walker and Salt 2006).

Information Gap 2. Assessing community cohesion - Two important elements of community cohesion that are identified in the Resilience Alliance workbook were not explored in the pilot RA: conflict management and social networks. The Resilience Alliance (2010:39) recommends summarizing conflicts relevant to the main issues, conflict resolution mechanisms, and describing the decision-making system. Though conflict management concerns did emerge in conversations with participants, this discussion needs to become an explicit part of the pilot RA template.

The Resilience Alliance (2010:41) also suggests creating a social network map for the focal system. Social network mapping involves asking every actor or group about relations with others and then merging all relations to identify:

- Central actors in the network;
- Internally cohesive groups;
- Groups open to collaborating with other groups; and
- Isolated groups that might pose a barrier to social cohesion.

(Resilience Alliance 2010:41)

Social network mapping was not undertaken in the pilot study. It would have required considerable investment to complete a sufficiently detailed map for the entire community. It would have been useful, however, to highlight central actors, actors that distribute information between groups, and isolated groups to discuss their implications on community collaboration. As described earlier, I recommended that targeted resilience studies, similar to the CCE (2000) template, follow the baseline resilience assessment performed in the pilot study. Social network mapping would be appropriate within these targeted resilience studies which should learn from and build upon the system perspective of the baseline RA.

4.1.2 RA Step 2: Historical timeline

Obstacle 2. Utility of the historical profile table for community users - The historical profile focused on answering “*Resilience to what?*” by highlighting major eras and disturbances that

changed Huntsville's economy, environment, or society and how the community responded. A community is so intertwined with other systems that listing all possible disturbances was not practical. Information was sifted to showcase major changes and reveal vulnerabilities and underlying causes of disturbance. Information was gathered from secondary literature and Delphi participants, who were asked to identify significant past events with lessons for the modern era.

The Resilience Alliance uses a historical profile table that identifies the following attributes for each major era: pulse or press event, frequency of occurrence, time for recovery between occurrences, components most affected, magnitude of impact (minor or severe), any associated change in past years, and adaptive cycle phase. This level of detail is practical for smaller-scale natural resource management problems, such as well-documented forest changes due to drought and fire. From the researcher's perspective, this level of detail and technical language would not be helpful for community users of the RA. The historical timeline table in the pilot RA listed the following attributes for each major era (Appendix 3):

- *Agent of change* - disturbance or innovation believed to trigger an event;
- *General impact* - on larger scales, e.g. region, nation, international; and
- *Impact on Huntsville* - specific changes observed in Huntsville that were at least partially attributed to the change agent.

Sufficient description was provided in the historical timeline to allow competent RA practitioners to deduce much of the information traditionally found in the Resilience Alliance's historical timeline.

Obstacle 3. Input to construct the historical profile - The researcher was the primary actor who sifted information to assemble the historical profile. To account for inadvertent bias introduced by the researcher's perspective, the Delphi group was encouraged to review the RA case report and suggest revisions. Only one edit to the historical profile was provided, which was incorporated. Involving stakeholders to a greater extent in constructing and critiquing the historical timeline may have helped identify recurring disturbances, vulnerabilities, drivers of change, potential thresholds of concern, and community responses to change.

For example, the historical profile could be shared with participants during the first online discussion when the Delphi group reviewed the first RA draft. At that time during the pilot study, the historical timeline had not yet been fully completed by the researcher. Including the historical

timeline along with the first draft would also be a large amount of content for volunteer participants to review. One option is to direct participants interested in local history to review the historical timeline rather than asking all Delphi participants to perform this task. This would allow those who are passionate about history to partake while allowing others to opt out.

Obstacle 4. Illustrating alternate states - A social-ecological system can exist in more than one stable state. These multiple states, called *alternate states*, may have occurred in the past or could emerge in the future (Resilience Alliance 2010:25). The historical profile summarized past alternate states and scenario exploration, during RA Step 3, explored three potential future states. Figure 6 illustrates a possible evolution of Huntsville through the adaptive cycle and identifies several states of the Huntsville SES. It would have been helpful to illustrate the evolution of each main issue (Table 5) through past states, similar to Figure 9. This would summarize key points from the historical timeline and help participants and RA users understand alternate states.

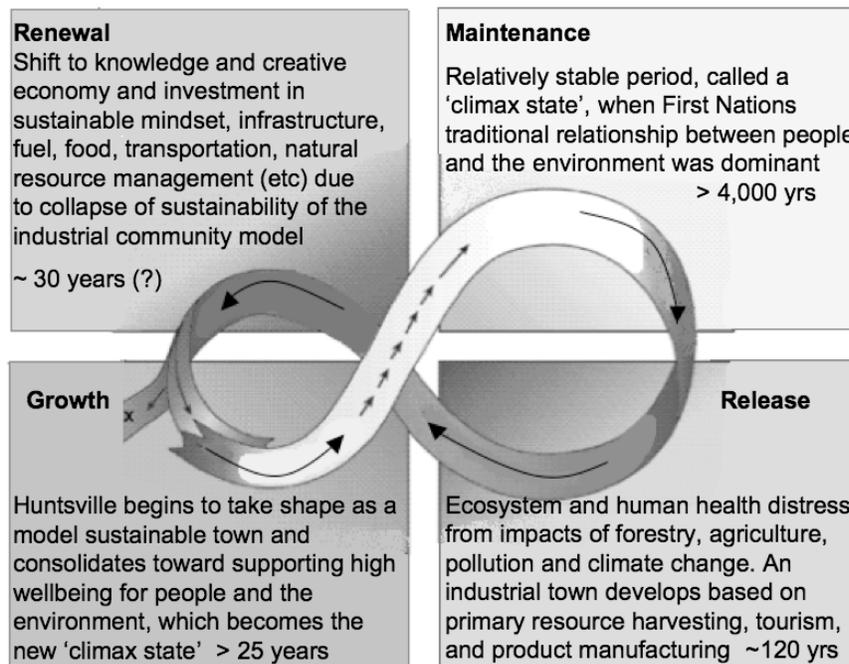


Figure 9 - Simplified illustration of potential stages Huntsville could pass through as it moves from the old maintenance phase toward a new climax state (excerpt from case report)

Information Gap 3. Describing past transition phases - The pilot RA focused on how the transition from the current state to several future scenarios could occur. Some past transitions are

described in the historical profile but information was not always available. For example, some historical documents identified triggers of change and resulting consequences without describing the intervening transition. Previous suggestions could help bring more attention to past transition phases, such as involving stakeholders in constructing the historical timeline (Obstacle 3) and illustrating the evolution of past stable states for each main issue (Obstacle 4).

4.1.3 RA Step 3: Exploring future scenarios

Obstacle 5. Identifying steps to encourage reorganization and renewal - During future scenario exploration, comments from participants about encouraging reorganization and renewal generally focused on municipal leadership, keeping young people, and attracting entrepreneurs. Important elements that feed system renewal were missing, such as maintaining social and ecological memories and accepting different forms of knowledge (Resilience Alliance 2010). This may be due to the limited diversity of people that participated in scenario exploration (addressed in 4.2).

The case report (Appendix 3) explains the importance of fostering renewal and outlines key insights from existing literature to help guide strategic management (e.g. Cabaj 2009, Westley 2009). In future case studies, a stronger educational component may be appropriate to ensure charrette participants understand resilience thinking concepts. For example, the detailed explanation of the renewal phase provided in the case report could be included in the introductory speech before focus group discussions commence.

Obstacle 6. Selecting key variables to track system change - A list of key variables that drive change in the Huntsville SES was compiled based on input from Delphi and charrette participants. The Resilience Alliance recommends selecting 3-5 key variables to track change in the system over time. This task was not performed in the pilot RA. Instead it was posed to the users of the case report as a ‘next step’ in the RA process. Identifying these key variables could be done during the initial RA or by following up with the group(s) responsible for implementing the RA. Key informants that are able to make change in the system’s management should be involved in selecting the variables.

Information Gap 4. Improving understanding of thresholds - The case report presented a list of potential thresholds of concern that address the social, economic, and environmental domains. The assessment question “*What steps are needed to improve understanding of thresholds?*” is highlighted

for users of the RA report to consider. Three to five high priority thresholds could be selected during the initial RA and/or with the group(s) responsible for implementing the RA. This limited subset would allow more targeted examination of each threshold in order to identify slow variables and connections to other scales. A list of important connections to other scales and key slow variables was provided in the case report but not linked to each and every potential threshold.

4.1.4 RA Step 4: Adaptive cycle and important connections

Information Gap 5. Location of larger and smaller scales in the adaptive cycle - In order to understand cross-scale interactions, the Resilience Alliance (2010:30) identifies larger-scale systems that strongly influence the focal SES, such as the regional and provincial governments. It is equally important to consider the influence of smaller sub-systems within the focal SES, such as community organizations. In the pilot RA, the community's location in the adaptive cycle was discussed but not directly related to the location of larger- and smaller-scales in the adaptive cycle. The data collection process did not provide sufficient information to know which scales had the strongest influence on the Huntsville SES or to determine the location of these scales in the adaptive cycle. Participants could have been asked to prioritize the strength of influence contributed by different scales and report the level of certainty attached to their response. As a next step, the list should be refined to focus on 1-2 larger and smaller scales where information can be gathered about their location in the adaptive cycle and their connection to the Huntsville SES adaptive cycle.

The case report (Appendix 3) presented a list, based on feedback from Delphi participants, of important larger-scale and smaller-scale connections that influenced Huntsville. Eight questions from the Resilience Alliance workbook on this topic were posed to users of the RA as 'next steps' in the resilience assessment process:

- 1. In what ways do larger scales foster change or constrain the community?*
- 2. Are the innovations and learning coming from smaller scales (e.g. community groups, businesses, entrepreneurs, youth) being captured at community-level? If so, how? If not, what needs to be done to take advantage of this innovation and learning?*
- 3. How can opportunities for leveraging cross-scale connections be created to achieve desirable outcomes for Huntsville / Muskoka?*
- 4. Are sectors of the community or the community overall in the maintenance phase? How can renewal be encouraged to help avoid turbulent negative changes?*

5. *How can collaborative efforts, like the Unity Plan implementation teams, stay vibrant and move forward as conditions shift, participants change, and attention wanes?*
 6. *How can critical social and ecological thresholds be better understood? This commitment to learning helps avoid inadvertently crossing undesirable thresholds that could potentially trigger cascading change and empowers the community to work towards desirable transformations.*
 7. *There may be completely novel shocks with impacts that are yet unknown - are there parts of the system that show low / declining levels of the general resilience features?*
 8. *Could specific management actions unintentionally erode general resilience?*
- (Resilience Alliance 2010 - excerpt from pilot RA case report)*

Information Gap 6. Illustrating cross-scale connections and threshold interactions for community users - The Resilience Alliance (2010) recommended synthesizing and illustrating the thresholds and interaction effects most relevant to the focal system. This level of detail was not attained in the pilot RA. Potential thresholds, identified by participants and the researcher, were listed in the case report to help RA users select 3-5 priority thresholds. This could also be performed in a subsequent round of the resilience assessment. The potential for thresholds to interact with each other and cause cascading change within and across scales was explained in the case report. An illustrated example from Westley (2008) showed how adaptive cycles operating at different scales can help transmit change. Once 3-5 thresholds are selected, it would be useful to construct diagrams that show how cross-scale connections impact the Huntsville SES and how interacting thresholds might trigger cascading change. It would then be appropriate to list specific slow variables and connections to other scales for each threshold.

4.1.5 RA Step 5: Acting on the resilience assessment

Information Gap 7. Delineating next steps - The RA case report (Appendix 3) culminated with a list of action strategies identified by participants and the researcher for the three main issues. The Resilience Alliance workbook did not provide much detail regarding how to act on the assessment. The CCE RA framework provides instruction on how to continue community engagement and move through subsequent stages of priority setting, decision-making, and action planning. Criteria are provided by CCE (2000) to identify high-impact areas to focus resilience management. This approach was explained to stakeholders through presentations performed by the researcher after the

release of the final RA case report. It was not, however, explicitly stated in the case report. It is recommended the CCE approach be included in RA Step 5.

Obstacle 7. Discussing need for transformation - The pilot RA did not sufficiently address the need for system transformation. The Resilience Alliance workbook addressed this issue for natural resource problems where transformation could be desirable or undesirable. For human communities, such as towns and cities, the need for transformation to address resource degradation and inequality is strongly asserted (e.g. Homer-Dixon 2006, MEA 2005, Gibson et al. 2005). For human communities in North America and other affluent regions, the argument should center on how to facilitate transformation rather than whether it is necessary.

There was some discussion about transformation during scenario exploration in RA Step 3. It is clear that some participants did not grasp that the current state experienced by most affluent communities was not sustainable. This underscores the merit of integrating a stronger educational component into RA participatory processes and the need for more explicit conversations about the need for transformation. Raising the importance of facilitating transformation would inject a stronger ‘social change’ dimension. As stated by Delphi participant D25, “[The RA needs to] provoke more controversial dialogue. Everyone wants solar panels - what we need is to talk about is human nature and how to change it.”

Obstacle 8. Directly connecting the RA to formal decision-making - The RA results were presented at a community outreach event on July 6, 2011, and to Huntsville’s Unity Plan Committee on July 27, 2011. Both presentations received positive feedback and support from those in attendance including Unity Plan committee members. Further follow-up would be required to determine whether any RA recommendations were acted upon. A portion of RA participants did become formally involved in implementing the Unity Plan, which may improve the likelihood RA results are utilized but is no guarantee.

There was no guarantee that recommendations emerging from the pilot RA would be acted upon. Verbal non-binding support of Town Council and Unity Plan Task Force members were necessary elements that guided selection of the case community. It would greatly improve the utility of the RA process if decision-makers committed to duly consider recommendations resulting from the RA. This could positively impact participation rates by giving people confidence that the assessment would be

used to make change happen. Endorsement of the RA by elected officials could also deter participation by those with suspicious perceptions of the role and sincerity of municipal government. Politics and power are inherent parts of community planning and of democratic decision-making (YHEP 2010, Olsson et al. 2008).

4.1.6 General observations

Two general observations emerged from reflecting on Criterion 1. First, several information gaps could have been filled by extending the stakeholder engagement period. For example, lengthening the Delphi exercise, adding more and longer focus groups, and hosting different engagement venues. The tradeoff was between extended information gathering and the commitment requested from volunteer participants and limited resources to run the project. A second general issue was deciding what to include in the RA and what questions could be left for later steps. This is an important consideration when the baseline RA is a community's first introduction to resilience thinking as a process to facilitate sustainable community planning.

4.1.7 Conclusion - was the pilot RA effective according to Criterion 1?

The pilot RA addressed most of the assessment questions posed in the Resilience Alliance (2010) workbook that could be reasonably extended to the community scale. Though there were difficulties, I contend that the remedies offered to improve the RA's community application are sound and appropriate. A summary of information gaps, obstacles, and recommendations that emerged from examining Criterion 1 is provided in Appendix 2.

4.2 Criterion 2 - Diversity of stakeholders participated

This criterion focused on one key question: "*Did the sampling strategies collect a sufficient diversity of participants?*" The Delphi exercise and charrette were intended to collect in-depth knowledge rather than be representative of the entire community. Three elements were considered to assess this criterion: the sampling strategy, participants' demographic characteristics, and participants' primary interests (e.g. economic, social, or environmental).

4.2.1 Diversity of participants in the Delphi exercise

4.2.1.1 Findings and observations

For the Delphi group, purposeful sampling was performed using the snowball strategy to identify key informants (3.3.2). Figure 10 illustrates the range of people that formed the Delphi group.

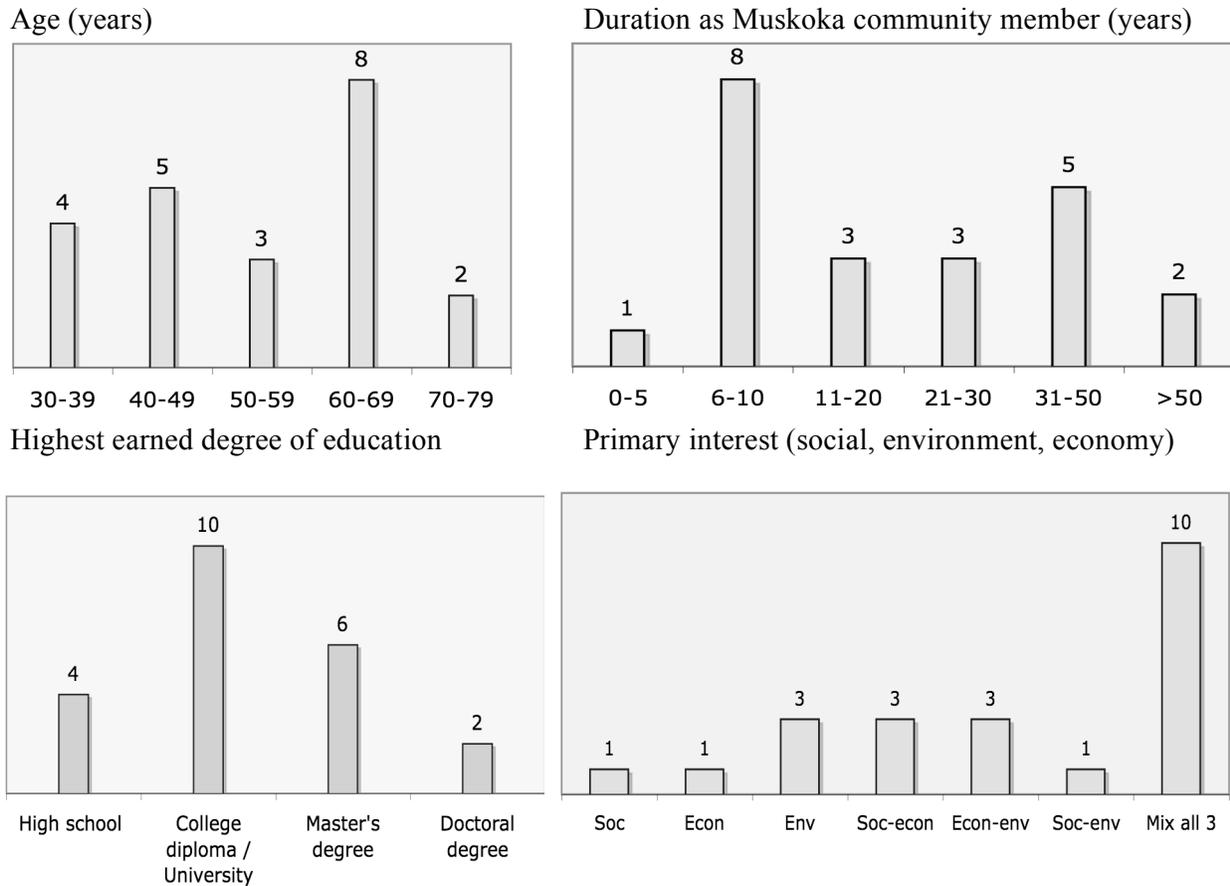


Figure 10 - Key demographic characteristics of Delphi participants

Each Delphi participant was expected to have strong local knowledge within his / her area of interest. As such, a broad range was not expected for the following attributes:

- **Age: likely mid-career adults and seniors** - Nearly half (10/22) of Delphi participants were 60 years of age or older. Key informants under age 30 may have not have been nominated, through the snowball technique, because they fell outside social networks of older Delphi participants.

- ***Educational attainment: likely pursued higher education beyond high school*** - Over 80% of the participants (18/22) had at least one degree from a college or university and almost half of those people had a Master's or PhD degree. According to the 2006 census, only 33% of Huntsville's permanent population over age 15 had attained college or university education (Statistics Canada 2007). A high school degree was the highest educational attainment for four participants. According to the 2006 census, only 28% of Huntsville's permanent population over age 15 had only a high school certificate (Statistics Canada 2007).

- ***Resident status: likely permanent residents*** - Most participants (18/22) were permanent residents of Huntsville. One person was a seasonal Huntsville resident and three people resided in Muskoka communities outside Huntsville (one seasonal and two permanent residents). It was important to hear the perspectives of non-residents, as they provided insight from an outside perspective. For example, several participants were considered knowledgeable about the overall Region of Muskoka. Seasonal residents may also see Huntsville through a slightly different lens tempered by experience living in other communities.

- ***Duration as a resident: likely longer-term residents (e.g. over 10 years)*** - Over half the participants (13/22) had lived in Huntsville for over 10 years. It was considered an advantage to gain the perspective of two community members who had lived in the area for over 50 years and could comment on how the town had changed over time. One community member who lived in Huntsville for only 3 years provided more of a 'newcomers' perspective.

Diversity was desired in the following categories, since an overabundance of Delphi participants in any of these categories could bias the resilience assessment:

- ***Personal interest in economic, environmental and/or social issues*** - Most reported mixed interests with just under half of participants (10/22) selecting a mixture of economic, social, and environmental interests. Interest in the environment and economy were mentioned equally often (17/22) while interest in social issues was mentioned slightly less often (15/22).

- ***Occupation - public, private, or self-employed*** - The Delphi group was divided fairly evenly between public sector employees and private sector employees (10/22 and 8/22 respectively). Three participants were self-employed and one participant worked in the charitable sector.

- **Gender** - The Delphi group was fairly evenly divided: 13 men and 9 women.

Finally, the involvement of decision-makers is a critical element of effective community participation (2.3). Due to participant confidentiality agreements, the number of Town Council members / municipal staff present and their roles cannot be shared.

4.2.1.2 Discussion of key findings and recommendations

The Delphi sample was not intended to be representative of the overall community. This exercise was meant to strategically collect in-depth local knowledge from a variety of perspectives. The Delphi exercise collected a reasonable diversity of participants for the pilot study. Improvement is warranted for future case studies.

Recommendation 1. Record participants' income and geographic location of home address - Participants were not asked to report annual income or the geographic location of their home address. These two demographic characteristics should be collected in future case studies to help direct where additional sampling might be needed. Based on participants' higher educational attainment and occupations (Figure 10), it is possible the Delphi group primarily involved people of moderate to high socioeconomic status. The credibility of the RA would benefit if key informants with lower socioeconomic status were directly involved.

Participants should also be asked to report their home address or what municipal ward they reside in. This would help illustrate the 'geographic range' of participants across rural and urban areas within the municipality. This can be an important factor in municipalities where the opinions of urban and rural residents can be polarized. Newman et al. (2007) stress the importance of involving rural regions when planning for sustainable development in the urban centre.

Recommendation 2. Extend sampling time period - Time constraint limited how long the researcher could search and wait for responses from individuals nominated as key informants. If possible, the sampling time period should be extended if early analysis shows that certain categories are missing in the key informant group (e.g. age group, minority group) (Daly 2007). In the pilot study, two nominated individuals contacted the researcher after sampling had finished and the next

phase of the RA had begun. Flexibility in the field schedule would have allowed these individuals, which were under age 30 (an un-sampled age category), to join the Delphi group.

Recommendation 3. Involve individuals and organizations from under-sampled categories - Obvious gaps in the Delphi sample, considering demographic characteristics and personal interests, should be used to indicate where additional effort is warranted to engage these groups. Soliciting key informants from un- or under-sampled categories in the population, such as young adults, low income, and vulnerable groups, would improve the depth and credibility of the RA. The researcher did send email invitations to several community organizations involved in social services - a category with lower presence in the Delphi group. No responses were received from the email invitations. In-person or telephone contact with these organizations may improve participation, similar to how in-person interviews improve rapport (van Dijk 1990).

Encouraging those not immediately inclined to participate is an ongoing and pervasive problem for citizen participation (Zimmerman and Rappaport 1988). Citizen participation literature underscores self-efficacy, personality, and cognitive and motivational barriers / incentives that influence the likelihood a person will feel empowered to participate (Zimmerman and Rappaport 1988). To enhance self-efficacy - whether a person feels able to influence change - more effort should be invested in introducing the RA to influential community leaders and organizations (Tolan et al. 1990). Even if these individuals and organizations decline involvement in the project, they would understand the project and might nominate key informants or encourage others to get involved.

Recommendation 4. Make the presence of decision-makers known to other participants - Due to participant anonymity, the presence of decision-makers could not be disclosed. Other participants may have doubted decision-makers were actually involved in the RA. Involving decision-makers is an important aspect of effective participation though the presence of politicians can work for or against efforts to build trust in participatory processes (YHEP 2010). Since the Delphi exercise occurred during a municipal election campaign, the online discussions may have been commandeered by political criticism or platforms if Town Council members and prospective candidates had been identified. Outside of election circumstances, discussion could still be derailed if individuals used the online forum to debate topics not relevant to the RA. It is recommended that, at least, an identifying label be displayed for each participant, such as “Council member”, “community

activist”, “small business owner” (etc). Trained facilitators should be used to moderate conversations and manage conflict even if anonymity is not fully removed.

Recommendation 5. Display each participant’s expertise - Participants were accepted into the Delphi group because they were believed to be knowledgeable key informants by the people who recommended them. More detail should be collected about each participant’s area and level of experience. For example, each participant could be asked to list # years of work experience, formal training, and informal training. Another option is to ask each participant to rate his / her confidence in explaining issues within the area of expertise (e.g. using a qualitative scale from 1-10). Sharing this information could help improve credibility of participant’s comments and of the overall RA, but could degrade participant confidentiality. Though individual names would not be shared, it is possible that identity could be surmised based on the expertise details.

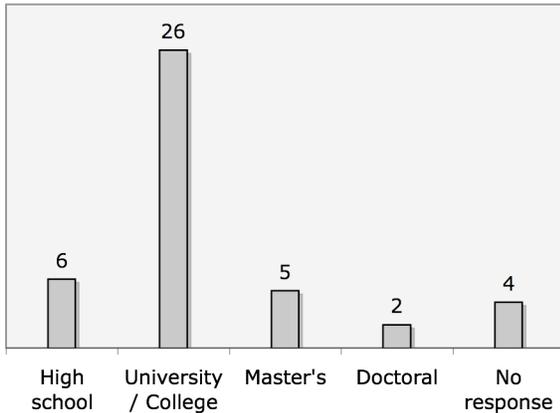
4.2.2 Diversity of participants in the charrette

4.2.2.1 Findings and observations

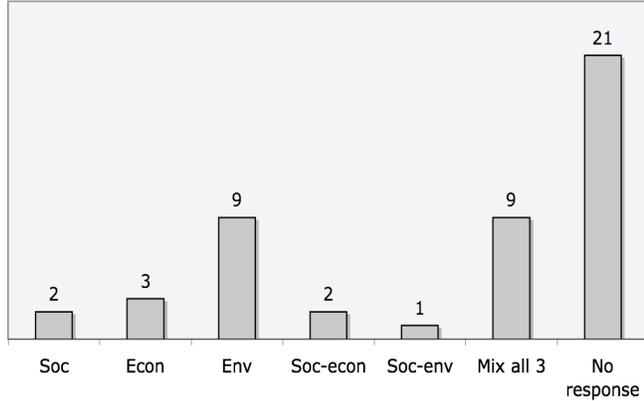
For the charrette, self-selection sampling was performed using an open invitation to the event. Due to the limitations of this sampling strategy (3.3.3), a high diversity of participants was not expected. It was hoped the charrette would attract at least as much diversity as the Delphi sample, since the charrette did not require expertise or nomination and was advertised to the general public aged 18 years and older. Forty-seven people attended the charrette in total: forty were participants and seven were community volunteers (collectively referred to as ‘charrette attendees’).

All attendees were permanent residents of Huntsville, which was expected since charrette invitations were distributed primarily in Huntsville. The sample was comprised of 30 men and 17 women. Figure 11 (next page) presents charrette attendee’s demographic information, in aggregate, for occupation, age, educational attainment, and primary personal interest.

Highest earned degree of education



Primary interest (social, environment, economy)



Occupation



Age (years)

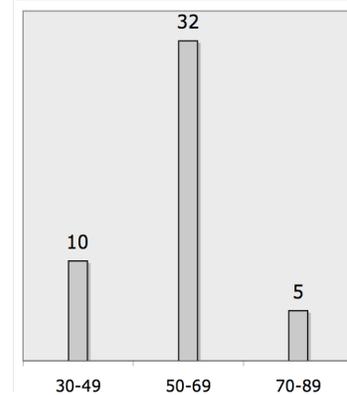


Figure 11 - Key demographic characteristics of charrette attendees

It is not known why nearly half the group did not voluntarily report their primary interest. It is possible these participants did not feel comfortable answering or overlooked the question. Nine charrette attendees identified the environment as their sole primary interest. This observation may hint at the tendency of self-selected samples to attract strongly opinionated individuals already interested in the issues under study (Buddenbaum and Novak 2001). People may have tailored their responses to what they perceived to be the researcher’s interests since the event was hosted in the ‘Waterloo Summit Centre for the *Environment*’.

The main limitations in the diversity of the charrette sample were observed in age, educational attainment, and presence of decision-makers. Age ranged from 30-89 years with 68% (32/47) of charrette attendees aged 50-69. According to the 2006 census, roughly 25% of the entire permanent

population of Huntsville fell within the 50-69 age range (Statistics Canada 2007). As with the Delphi sample, no participants attended the charrette that were under age 30. Flyers advertising the event were posted at several athletic clubs in the community to try to attract younger adults to the event. Regarding educational attainment, 70% (33/47) of attendees had at least one degree from a college or university and, of those people, seven had a Master's or PhD degree. According to the 2006 census, only 42% of Huntsville's permanent residents aged 35-65 had college or university education (Statistics Canada 2007). Finally, participants were not asked whether they were members of Town Council or civil servants. This information should be solicited in future studies.

4.2.2.2 Discussion of key findings and recommendations

In conclusion, based on the diversity of demographic characteristics and personal interests of charrette attendees, a greater diversity of participants should be sought in the future. Several recommendations and prominent obstacles are discussed below.

Recommendation 6. Request additional information from charrette attendees - As discussed in 4.2.1.2, participants should be asked to report their annual income and geographic location of home address. Participants should also be asked to specifically state whether they are a current Town Council member or municipal or regional staff member. In addition, it would have been helpful to question charrette attendees about how they heard about the charrette to determine which invitation methods were successful.

Recommendation 7. Use sampling techniques that improve participant diversity - The self-selection technique should be modified or alternative methods be employed to improve participant diversity. To complete a RA performed in the City of Sault Ste. Marie, Ontario, eligibility criteria were used to select participants according to demographic characteristics (e.g. gender, age group, ethnic minority) and affiliation with targeted interest groups (e.g. government council and staff, small businesses, social and environmental organizations, etc) (Ortiz and Savory-Gordon 2006). A focus group was assigned for each demographic category and interest group. To further improve this protocol, a maximum number of participants should be accepted per focus group and the sampling time frame should be extended until the minimum participant quantity is filled for each group (Krueger and Casey 2000).

The CCE framework, which was employed in the Sault Ste. Marie RA (Ortiz and Savory-Gordon 2006), uses eligibility criteria to screen potential participants for each step of the RA. Different groups are targeted for different stages of the RA. To gather information for the initial resilience assessment, representative community participation is sought along with input from targeted groups, such as key informants, stakeholders most affected by the main issues, and decision-makers. Effort is required to garner the involvement of harder to access groups. Several one-on-one or group meetings may be necessary in advance of formal RA participation to convince stakeholders to attend, particularly groups that have a history of being or feeling marginalized.

Obstacle 1. Evaluating sample frame and sample coverage - Since advertising for the charrette was performed through email, word of mouth, and flyers in popular public spaces, it is not known how many people knew about the invitation or how many people refused to participate. It is possible that people who refused or did not receive an invitation differed from those who accepted the invitation, which is called a sample coverage problem (Karney et al. 1995:910). Evaluating sample coverage will remain difficult unless traceable invitations are sent to potential participants that would allow the researcher to know who does / does not respond. Karney et al. (1995:911) suggests using public records to look for differences between those who do and do not agree to participate (e.g. occupation, age). A follow-up phone call or doorstep survey could be performed to try to gain this information.

4.2.3 Conclusion - was the pilot RA effective according to Criterion 2?

In the pilot RA, the snowball sampling technique collected an acceptable diversity of key informant participants for the Delphi exercise. For the charrette, self-selection sampling resulted in lower participant diversity than was desired. The pilot RA template should be amended to improve participant diversity based on recommendations offered in this section. In particular, future case studies should ‘scale-up’ the sampling protocol to engage more participants using a variety of engagement methods, strive to include under-sampled groups in the community, and seek representative community participation for non-key informants.

4.3 Criterion 3 - Participatory processes contributed to participant empowerment

Individual empowerment is a key attribute of effective community participation (2.3). Empowerment was defined as the connection between a sense of personal competence and willingness to take action

in the public domain on issues related to sustainability (Zimmerman and Rappaport 1988:725). Delphi participant feedback from the second interview and second online discussion was used to evaluate this criterion. Participants were asked questions relating to:

- General individual empowerment attributed at least partially to involvement in the RA; and
- Whether involvement in the RA contributed to individual empowerment to voluntarily help implement Huntsville’s sustainable community plan - the Unity Plan.

4.3.1 Findings and observations

i. General individual empowerment

During the second interview, Delphi participants were asked,

“Since you started participating in the RA, have you made any changes in your own life that you think this project at least partially contributed to?”

Twenty-one participants answered this question. Responses are summarized in Figure 12.

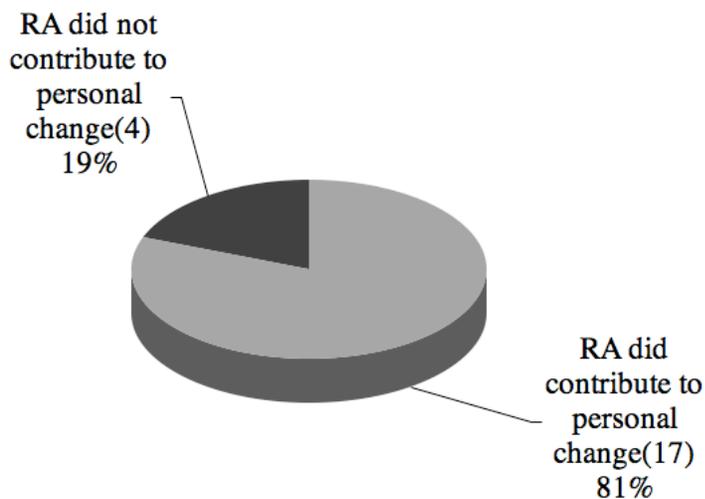


Figure 12 - Delphi participants’ responses regarding whether participating in the RA contributed to personal changes (e.g. behaviour, attitude, perspective, etc) (21 participants responded)

Eight themes were observed in Delphi participants’ responses, which are summarized in Table 6 (next page).

Table 6 - Themes observed in Delphi participants’ responses regarding how involvement in the RA contributed to personal change (21 participants responded)

Theme	Exemplar quotations
1. Increased awareness and understanding of resilience and community issues - 8 / 21 participants	<p>“This project brought awareness and connection to different issues. (D13).”</p> <p>“I have a sense of understanding. [The RA] is really like public education (D15).”</p>
2. Reflected on important issues and the future - 7 / 21 participants	<p>“I’m more passionate towards enabling opportunities to improve the community ...the [RA] conversations have been great for reflecting (D11).”</p> <p>“Between the Unity Plan and [the RA] I think more about the good and bad I’ve seen in the last thirty years of my work. It can hurt to think what is good urban design and sustainability, since it’s not always the most apparent. Your project engaged me and my family in the discussion (D17).”</p>
3. No personal change - 4 / 21 participants	<p>“I was always involved on these topics [in the RA]. I already had that awareness (D12).”</p>
4. Reassessed personal role or purpose - 3 / 21 participants	<p>“I’ve reassessed my role [with an environmental organization]. As a result of our discussion I see a sustainability council emerging at the District level and local chapters of the message (D26).”</p>
5. Learned about different perspectives - 3 / 21 participants	<p>“[The RA] got me involved in a discussion I normally might not have. I got to hear new perspectives and issues, think about the longer-term future, communicate and really think (D32).”</p>
6. Noticed need for better communication - 3 / 21 participants	<p>“I’ve seen that people, professionals, municipalities need to communicate with each other and the public better (D19).”</p>
7. Noticed resilience is not present in the Unity Plan and should be - 2 / 21 participants	<p>“I realized that resilience wasn’t included in the Unity Plan explicitly and it must be there and lined up so things actually last (D23).”</p>
8. Took action to help the environment - 2 / 21 participants	<p>“I got more involved in environmental awareness and simple steps to help the environment, like saving water and energy (D13).”</p>

ii. Specific empowerment: commitment to help implement the sustainable community plan

During the second online discussion, participants were asked four questions (a-d) about whether they felt empowered to help implement Huntsville’s sustainable community plan - the Unity Plan.

a. "Have you decided to participate in implementing the Unity Plan?"

Responses to this question, which was answered by twenty Delphi participants, are summarized in Figure 13.

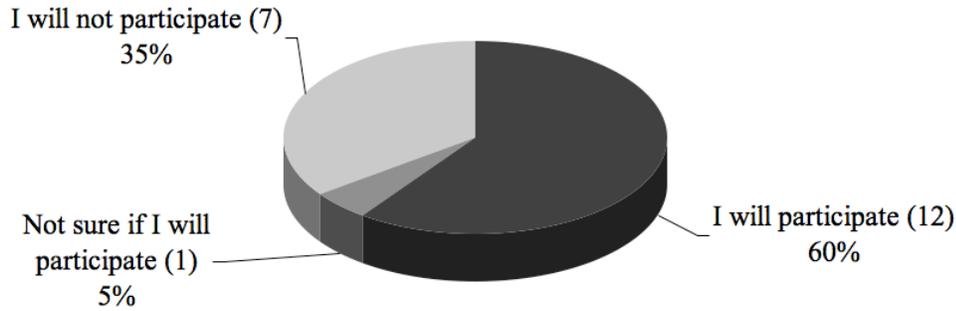


Figure 13 - Delphi participants' responses regarding whether they planned to participate in implementing Huntsville's Unity Plan (20 participants responded)

b. "Did participating in the RA affect your decision to help out with Unity Plan?"

Ten Delphi participants responded to this question, all of which said they would help implement the Unity Plan (positive answer to question-a above). Figure 14 summarizes responses to this question.

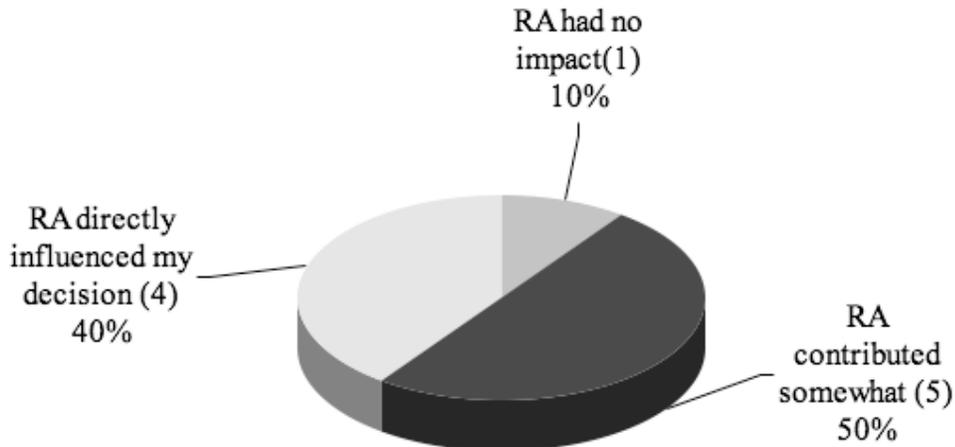


Figure 14 - Responses by Delphi participants regarding whether involvement in the RA contributed to the decision to help implement the Unity Plan (10 participants responded)

c. *“What encouraged you about taking part in the Unity Plan?”*

Table 7 summarizes responses to this question, which was answered by 13 / 20 participants. This information could help direct future efforts to improve participant empowerment.

Table 7 - Themes observed in Delphi participants’ responses regarding factors that encouraged commitment to help implement Huntsville’s Unity Plan (13 participants responded)

Theme	Exemplar quotations
Use of internet and collaborative processes the RA introduced - 5 / 13 participants	“To help people with busy schedules fit the Unity Plan into their life, I suggest using the Internet. Get an email list of those interested, post information/updates on the town website, and create a forum for people to comment (D28).” “I am driven by a collaborative approach and know how important it is to have 'worker-bees' at the table (D30)!”
Volunteering is personally rewarding - 3 / 13 participants	“I have been heavily involved in volunteer work for the past 16 years since retirement. Except for one experience, it has been very rewarding (D18).”
Many small actions can be quickly completed to build support for the Unity Plan - 3 / 13 participants	“Early successes – plucking the low-hanging fruit – could help to build momentum and encourage wider involvement (D31).”
Existing or potential for leadership shown by Council regarding the Unity Plan - 3 / 13 participants	“Now is a perfect time for the Mayor and Council to provide leadership at the beginning of this new 4-year term... e.g. identify the goals for the next municipal term, including public education and encouragement for all to participate (D15).”
The presence of motivated people already helping implement the Unity Plan - 2 / 13 participants	“I am always encouraged to help because of the people already taking part in these groups (D21).”
Understanding different perspectives and relevant issues thanks to the RA - 2 / 13 participants	“What encouraged me to take part is more knowledge about some of the issues Huntsville faces [and] hearing people's passion about this town...(D32).”
Good potential for incentives to make participating in the Unity Plan fun and rewarding - 2 / 13 participants	“I feel the town can put incentives in place to make committee participation fun, gratifying, rewarding (D22).”

d. *“What discouraged you about taking part in the Unity Plan?”*

Responses to this question, which was answered by 18 / 20 participants, are summarized in Table 8 (next page).

Table 8 - Themes observed in Delphi participants’ responses regarding factors that inhibited motivation to help implement Huntsville’s Unity Plan (18 participants responded)

Theme	Exemplar quotations
<p>Getting and maintaining buy-in from lay person committee chairs, volunteers, and the broader community - 14 / 18 participants</p>	<p>I am sometimes discouraged at the immensity of the project and educating the “non believers”. We have to fight to keep the project alive and kicking and pressure ...committee chairs and community to buy in (D27).”</p> <p>“It takes great spirit and energy to work on such a project as the results can be slow to materialize. Commitment to our community is required, a spirit of giving, because we are giving to ourselves (D22).”</p> <p>“I would suggest those families where mom, dad and siblings must work one or more jobs just to survive are under represented...they will have no input, no say in their future or the future of their children and no real choice as whether to participate or feed their family (D20).”</p> <p>“I also am concerned that we are not connecting well with the youth of our community, to make the Unity Plan something they are excited about, and want to be part of (D23).”</p>
<p>Working together effectively to implement the Unity Plan - 8 / 18 participants</p>	<p>“Time is the biggest speed bump. Attending meetings and working on projects that will have minimal impact is discouraging (D11).”</p> <p>“The biggest road block is undoubtedly apathy. We are all busy with our day to day lives, but making change happen has to be a group effort. We need to keep focused on the prize – a sustainable community. We can’t get caught up in petty issues (D17).”</p>
<p>Commitment by Council (e.g. enforcement, leadership, hiring a Sustainability Coordinator) - 6 / 18 participants</p>	<p>“The only “speed bump” I see along the way is if the Unity Plan is seen only as a Vision and is not given the teeth it needs to be enforceable (D29).”</p>
<p>Financial budget limitations - 3 / 18 participants</p>	<p>“Other speed bumps include...if an appropriate budget is not dedicated to the Plan (D23).”</p>
<p>Other themes (summarized descriptions - not verbatim quotes)</p> <ul style="list-style-type: none"> ▪ Learning how other communities have tackled sustainability issues (success / failure stories) (D25) ▪ The name “Unity Plan” frightening people away from getting involved (D12) 	

4.3.2 Discussion of key findings and recommendations

The themes in Table 6 and commitment by 12 / 20 Delphi participants to help implement the Unity Plan align with Zimmerman and Rappaport's (1998:725) definition of citizen empowerment (2.3). Other studies relating to effective community participation and citizen empowerment report evidence of participant personal change / action similar to the themes listed in Table 6. In a study on the impact of a specific participatory research method (Photovoice) on participant empowerment, Foster-Fishman et al. (2005:275) found that, "impacts ranged from increased sense of control over their own lives to the emergence of the kinds of awareness, relationships, and efficacy supportive of participants becoming community change agents." The participatory method fostered these changes in participants by:

- Empowering participants as experts on their lives and community;
- Fostering deep reflection; and
- Creating a safe context for exploring diverse perspectives.

(Foster-Fishman et al. 2005)

Bracht and Tsouros (1990) identified key practices and skills that can enable people to better utilize community resources to improve community participation and decision-making. The following categories (A-D) were adapted from Bracht and Tsouros (1990).

A. Organizing for action (e.g. activities to initiate, promote, and manage community-based initiatives, lobby groups, committees) - Committing to help implement the Unity Plan is one way to organize for action through a community-based initiative. The RA helped motivate 12 / 20 (60%) Delphi participants to help implement Huntsville's sustainable community plan. Nine (45%) of these participants felt their involvement in the RA fully or partly influenced the decision to do so. Several of the instances described in categories B-D would fit category A if there were sufficient follow-through to turn words into action.

B. Advocating change (e.g. identifying and dealing with resistance to change; informing the public about important issues) - Only three participants who expressed theme #4 in Table 6 (D22, D26, D32) experienced empowerment that fits within this category. Participants D22 and D26 decided to take on new environmental and community advocacy roles. Participant D22 said, "I was empowered to suggest further changes to the Unity Plan, which were incorporated into the final

version. I realized that it's important for me to do what I can." Participant D26 reported, "I will also advocate for development of sustainability plans by neighboring municipalities in Muskoka, reflecting their own individual character and needs." Finally, participant D32 reported,

I believe seeing your passion, and learning more about where others are at has inspired me. [The RA] helped me, along with other things, to see myself maybe as a stepping block that other good news stories can build on. Maybe others will see what I do reaching out to the community, see a need themselves and do something about it. (D32)

C. Learning and developing skills that enable community organizations to support the sustainability movement - Table 6 themes #1, 2, 5-8 would fit this category if participants' experiences were applied within community organizations. For example, participants that are members of community organizations could relay knowledge gained from the RA to help the organization embrace the sustainability movement. Only participant D26 specifically mentioned a community organization when discussing individual empowerment:

I have reassessed my role [with an environmental organization]. I'm interested in community-based projects and I need to take the message from the District level right down to the local level. As a result of our [RA] discussion I see a sustainability council emerging at the District level and local franchises or chapters of the message (D26).

D. Learning and developing skills that enable individual behaviour that supports the sustainability movement - 17 / 21 (81%) Delphi participants who completed the second interview reported some type of empowerment at least partially attributed to involvement in the RA. Table 6 themes #1, 2, 5-8 fit within this category. Fourteen of these participants felt the RA contributed to modest personal change, such as expanding awareness and understanding of different perspectives and issues in the community. Moote et al. (1997) and Landre and Knuth (1993) caution that a valuable educational experience through participatory planning methods does not ensure greater public influence on administrative decisions.

According to empowerment theory, a research method is an empowering process when it offers an opportunity for action and reflection that fosters development of participatory skills and political understanding (Foster-Fishman et al. 2005, Zimmerman 1998, Keiffer 1984, Freire 1973). One of the most commonly mentioned themes that inhibited commitment to help implement the Unity Plan was "working effectively as a team" (Table 8). Since the Delphi exercise did not involve face-to-face

interaction or group work, it did not develop participants' capacity to work effectively in a group setting. The RA participatory processes did not demonstrate consensus-building, creation of a common future vision, or shared decision-making. More collaborative approaches should be tested that allow participants to work in a group setting, improve active exchange of ideas, increase interest, and promote critical thinking (Neo 2003, Gokhale 1995, Johnson and Johnson 1986).

Empowerment theory also asserts that participatory processes should foster development of political understanding (Foster-Fishman et al. 2005). Portions of the RA explicitly focused on leadership and governance in the community. Participants chose "leadership committed to sustainability and community engagement" as a main issue to focus the RA upon. This shows that Delphi participants were interested in the local political situation. Participants were not asked whether their political understanding had improved through participation in the RA. Tables 7 and 8 highlight the need for strong leadership from Town Council to motivate broader community involvement in the sustainable community plan. Clearly outlining how decisions are made and how much authority participants are endowed with at the decision-making table will help enable individual empowerment (Moote et al. 1997).

Five recommendations are provided to enhance the ability of the RA to contribute to individual empowerment related to sustainability. Recommendations offered for previous criteria (4.1 - 4.2) may also apply but are not repeated.

Recommendation 1. Observe whether participants changed their minds about helping implement the sustainable community plan before / after RA participation - Ask participants whether they plan on helping implement the sustainable community plan before the resilience assessment begins and after the assessment is completed. In the pilot RA, participants were only asked this question at the end of the RA. This may illuminate cases where the RA helped participants change their minds about getting involved with the sustainable community plan.

Recommendation 2. Use participatory techniques to develop resilience management skills - More collaborative techniques should be selected to facilitate development of participants' participatory skills, such as ability to work effectively in a diverse group setting. This could take the form of assigning topics within the RA to small groups of participants based on expertise and interest in the topic. Each group would commit to completing that section of the RA with assistance or

facilitation from the researcher. This group setting could encourage relationship and capacity building, creative idea generation, critical thinking, learning about and understanding the RA and targeted community issues. The collaborative style also increases stakeholder responsibility over the RA and engrains local ownership. It is recommended that participant anonymity be partially or fully lifted to allow face-to-face interaction and realistic team dynamics to emerge. If necessary, participant anonymity could be maintained by using only online group-work tools (e.g. online discussions, online document editing tools).

Improving participatory skills and participant commitment to the RA and local sustainability action hinges on the creation of environments that enable dialogue among diverse stakeholders (Moote et al. 1997). Further research could identify strategies used to build social contexts that are more likely to support critical thinking and constructive dialogue. For example, Campbell et al. (2007) identify six strategies to create a supportive context to help communities respond to HIV/AIDS:

- Build knowledge and basic skills;
- Create social spaces for dialogue and critical thinking;
- Promote a sense of local ownership of the problem and incentives for action;
- Emphasize community strengths and resources;
- Mobilize existing formal and informal local networks; and
- Build partnerships between marginalized communities and more powerful actors.

Recommendation 3. Help build community buy-in for the sustainable community plan - “Getting and maintaining buy-in for the Unity Plan from layperson committee chairs, volunteers, and the broader community” was a commonly mentioned challenge in Table 8. Building support for the sustainable community plan could become a stronger imperative within the RA. The RA could include a stronger educational component, such as learning sessions with experts on relevant topics, like national and international sustainability, ecosystem health and complexity, or urban resiliency (etc). Seeking representative community participation to complete the RA would help raise awareness among a wider range of people with different demographic backgrounds. The role of RA participants in community outreach will be addressed in 4.4.2.

Recommendation 4. Reduce likelihood of participants tailoring responses - An anonymous online survey should be administered to reduce the likelihood of participants tailoring responses to

over-report the utility of the RA and personal empowerment. *Normative behaviour* refers to when individuals alter personal opinions to suit the prevailing opinion of the group (McKenzie-Mohr and Smith 1999).

Recommendation 5. Assess individual empowerment using psychology measures - More detail could be added by asking each participant to report the degree to which he / she felt empowered by the RA, for example, using a qualitative scale to depict “high”, “moderate” or “low” empowerment. Zimmerman and Rappaport (1988) used techniques from psychology literature to measure individual empowerment. For example, participants were asked to report: willingness to work for change on personally and community relevant scenarios; general and political self-efficacy; desire for civic duty; and personality traits. These measures were self-reported by participants and participant observation was also recommended (Zimmerman and Rappaport 1988).

Recommendation 6. Allow comparison of individual participant’s demographic characteristics - Confidentiality agreements should allow comparison between the demographic characteristics of participants who experienced more substantial empowerment against other participants. This would make it possible to assess whether participants who experienced more substantial empowerment differed from the rest of the participant sample based on demographic characteristics.

4.3.3 Conclusion - was the pilot RA effective according to Criterion 3?

Eighty-one percent of the Delphi group experienced empowerment at least partially attributed to involvement in the RA. Minor personal changes were reported most often, such as understanding different perspectives and community issues. Three participants reported more substantial change (e.g. performing environmental advocacy) and nine participants felt the RA directly or partly motivated them to help implement Huntsville’s sustainable community plan. Thus, involvement in the RA fostered reflection and critical thinking for most participants, but recommendations should be acted upon to improve the likelihood of participant empowerment through development of participatory skills and political understanding.

4.4 Criterion 4 - RA process would be useful for other communities

Those who participated in the RA pilot are well poised to provide feedback regarding the RA’s utility and how it could be improved. The key question is, “What strengths and weaknesses did participants and the researcher identify in the pilot RA?”

4.4.1 Findings and observations

During the second interview, Delphi participants were asked,

“If the RA was applied in another community, do you think it would help empower participants to take action related to sustainability?”

Twenty out of twenty-one participants who completed the second interview responded to this question (Figure 15).

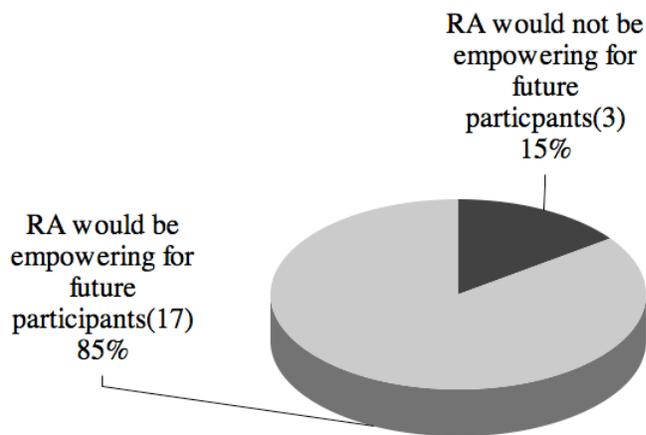


Figure 15 - Delphi participants’ responses regarding whether the RA would help empower participants in another community to take action related to sustainability (21 participants responded)

Table 9 (next page) summarizes participants’ responses that identified aspects of the RA that may help empower future participants.

Table 9 - Themes observed in Delphi participants’ responses that identified aspects of the RA that may help empower future participants (20 participants responded)

Theme	Exemplar quotations
<p>RA increases awareness and reflection on different issues and perspectives related to sustainability - 8 / 20 participants</p>	<p>“...cross-pollination and exposure to others’ ideas and feelings is important. It broadens our horizons and has a positive impact. It brings out common themes and thoughts. Change starts with individuals and [the RA] will help people to grow, change, and evolve (D28).”</p> <p>“Everyone who was involved has changed their thinking at least just a little bit. It helps people to get their opinions out and they can try to change other people’s minds while accepting that they must also change their own mind too (D18).”</p> <p>“...people will know a lot more and I think they’ll be converted. You need buy-in to get to the higher powers that can really make things happen (D27).”</p>
<p>Participants spread the RA message and learning to other community members - 4 / 20 participants</p>	<p>“I think the people involved in [the RA] have had their values exposed and challenged. They’re more able to debate and advocate sustainability with understanding. They can be ‘missionaries’ when needed (D26)!”</p>
<p>RA improves the sustainable community plan and facilitates implementation - 3 / 20 participants</p>	<p>“The gap analysis your project performs on the Unity Plan will help move the sustainability plan forward and streamline it, since the RA looks at 25 years down the road while municipalities normally just look at ‘now’. This will be a huge advantage for Huntsville (D29).”</p>
<p>Themes mentioned by 1-2 people each (summarized description - not verbatim quotes):</p> <ul style="list-style-type: none"> ▪ Seeing shared vision will encourage some people to take action (D12, 19) ▪ The RA participatory processes are personally beneficial and empowering (D22) 	

Eleven participants recommended improvements to the RA process. These recommendations are summarized in Table 10.

Table 10 - Themes observed in Delphi participants’ suggestions to improve the RA (11 participants responded)

Theme	Exemplar quotations
Broaden the participation base and get participation from all sectors including youth - 7 / 11 participants	“Your sample is just a small percentage of the community (D31).” “The process was useful but in the future the participation base should be widened. You probably wouldn’t find anything different but it gives the image of more involvement (D13).” “Get youth involved! Have teachers and students go through several different scenarios like your [charrette] and the whole resilience assessment process (D23).”
Facilitate transition from talk to action - 3 / 11 participants	“[The RA] is a beginning but will require making the transition from talk to action quickly if there is hope of maintaining momentum. Attempt to determine whether there is interest among the group in getting involved in a sustainable community task force that could get to work even as you prepare your final report and recommendations. When you release your study results, that community event could become a kick off for the task force (D24)!”
Themes mentioned by one person each (summarized description - not verbatim quotes): <ul style="list-style-type: none"> ▪ Provoke more controversial dialogue (D25) ▪ Extend the time frame to include more online discussions (D23) ▪ Connect leaders / experts with motivated community members (D27) ▪ Bring in outsiders and experts perspectives to talk with citizen groups (D25) ▪ Assign more weight to input from experts and less to community input (D25) ▪ Provide more specific suggestions on how individuals can help achieve broad goals (D19) 	

4.4.2 Discussion of key findings and recommendations

Several key findings are explored to further improve the utility of the RA as a tool to help empower future participants. Discussion focuses on four themes observed in Delphi participants’ feedback:

- Top two themes that might support empowerment in future RA case studies (Table 9); and
- Top two themes that must be addressed to remove barriers to empowerment (Table 10).

i. Empower future RA participants through critical thinking

Table 9 listed themes that emerged from Delphi participant feedback regarding the RA's utility for communities and whether the RA would be an empowering experience for future participants. The most commonly mentioned theme in Table 9 was "the RA increases awareness and reflection on different issues and perspectives related to sustainability." This theme fits within Bandura's (1963) concept of *social learning* - the social interactions among stakeholders through individual and group reflection that allow people to develop trust, change perceptions of each other's views, and enable new ways of working together (Stringer et al. 2006, Schusler and Decker 2003, Forester 1999). All of the themes presented in Table 9 embody social learning to some extent. Mathews (1994) cautions that the outcome of social learning is often an understanding of opposing views, which does not necessarily lead to individual empowerment, such as behaviour or attitude change. Stringer et al. (2006) agrees that meaningful participatory processes should elicit social learning and information exchange while stressing that participatory processes must directly link with management decisions.

Participant D25 was skeptical about the utility of the RA because it lacked critical edge:

I think the [RA] needs fresh blood. We need out-of-towners to come present what has been done elsewhere and provoke more controversial dialogue. Everyone wants solar panels - what we need is to talk about is human nature and how to change it. This project was too rudimentary - we need more weight from experts in the field and less community input. Offer ideas from experts, like case studies, and ask the citizen group "can that work here?" (D25)

Controversial conversations provide opportunities for values, beliefs, and assumptions to be exposed and challenged (Francis 2006). Community participation performed in the pilot RA afforded some decision-making power to the participants (Tamarack 2011). Decision-making power may encourage participants to critically examine issues if they are allotted a larger stake in the project. This approach would not prevent participants from uncritically advancing their own opinions. On the contrary, feeling more secure within a position of power may encourage this act by some people. As recommended previously, trained facilitators should be utilized to promote critical thinking and dialogue within power-sharing arrangements. Suggestions to improve the pilot RA template (Table 10) are consistent with literature on progressive community participation and community planning.

Participant D25 was also concerned about the role of experts and laypersons in the resilience assessment, "This project was too rudimentary - we need more weight from experts in the field and

less community input.” Recommendations provided in 4.2 help address this short-coming of the pilot study design. For example, it was recommended that each Delphi participant’s area and level of expertise be shared with the rest of the Delphi group. This would allow identity to remain anonymous, to the extent possible, while helping build trust and credibility.

Recommendation 1. Examine presence of critical thinking in participant responses - Since critical thinking and reflection were identified as important to the utility of the RA (Table 9), further inquiry may be warranted to determine how prevalent critical thinking was in participant responses. For example, De Lang et al. (2009) suggest the ‘practical inquiry model of cognitive presence’ to guide content analysis of online discussions for presence of critical thinking. The results of this type of analysis highlight ways to increase critical thinking using different activities within online discussions.

Recommendation 2. Test other qualitative methods to provoke more challenging dialogue - Present more challenging or controversial discussion questions to promote critical thinking and reflection within the online discussion and focus groups. Different participatory processes could also be used to achieve this purpose. For example, in a study on forest regeneration in agricultural areas, Sherren et al. (2010) asked participating farmers to photograph significant features on their property. The images were later used as prompts in interviews to explore participant’s values and opinions. This method is called ‘photo-elicitation interviewing’ and has been used in a variety of contexts, including with vulnerable groups, to help participants and researchers communicate and explore meaning, values, and experiences (Clark-Ibanez 2004).

ii. RA participants as community outreach vehicles

The second theme (Table 9) mentioned most often as a key strength of the RA was, “Participants would help spread learning from the RA to other community members.” As stated by participant D29, “The ‘bounce-effect’ of [the RA] will result in the message reaching many more than the people that participated.” The RA itself was believed to serve a public education role and it was hoped participants would voluntarily help build support for the local sustainability initiatives. This was not mandated to participants as part of the RA process.

The desire for RA participants to “debate and advocate sustainability...and be missionaries when needed (D26)” faces several key challenges. Performing effective public education to disseminate

knowledge and prompt behaviour change is not a straightforward process. The ‘stages of change model’ shows that behaviour change tends to move through a five-stage process: pre-contemplation, contemplation, preparation, action, and behaviour change maintenance (Prochaska et al. 1993). Progression through this model is not always linear or logical. A person may understand the need for behaviour change but not feel capable or motivated to initiate and then sustain the change. McKenzie-Mohr and Smith (1999) found that educational campaigns that successfully changed personal attitudes about the need to reduce energy-use failed to elicit behaviour change (e.g. installing a new home thermostat). There can be a significant gap between understanding the need for change and actually changing behaviour. This is why conventional public education campaigns that depend on relaying information, such as brochures and information sessions, often fail to procure sustained change (McKenzie-Mohr 2008).

Gaining support for a new idea requires a supportive *social context*, which is the influence of other people on individual beliefs, action, and behaviour (Westley 2008, Lo and Halseth 2007, Stern 2005, Rogers 2003). Diffusion of innovation theory (Rogers and Shoemaker 1971), which divides a human population into categories according to their willingness to change, found that “early adopters of behaviour change” are often involved in encouraging others to join the movement. However, early adopters generally account for only 2.5% of the population, are often perceived as radical outliers by the community, and afforded little credibility or power to persuade others to take up the innovation (Rogers 2003). It is possible the RA participants were already considered change agents in the community or that the RA encouraged participants to become change agents. Evidence of individual empowerment in 4.3 supports this assertion to some extent (e.g. theme #4 in Table 6).

Recommendation 3. Equip RA participants with capacity to perform community outreach - If advocating sustainability is an important element behind the utility of the RA and individual empowerment, participants should be equipped with capacity to perform this role effectively. There are a variety of helpful tools to facilitate behaviour change, such as social marketing (Kotler and Lee 2008, McKenzie-Mohr and Smith 1999) and outcome mapping (Earl et al. 2007). It is important to acknowledge that a program can influence but cannot control outcomes since the responsibility for change rests with each person or organization (Earl et al. 2007). It is worth considering whether performing community outreach and education should become an explicitly pursued outcome of RA participation.

iii. Empower more people and increase credibility of the RA by including more participants

To improve the RA for application in other communities, the most commonly mentioned theme in Table 10 demanded a broader participation base. This suggestion was already affirmed and discussed in 4.1.

iv. Empower future RA participants by quickly shifting from ‘talk’ to ‘action’

The second most commonly mentioned theme in Table 10 was the need to transition from “talk to action”. As stated by participant D19:

It's hard for individuals to see how they can help fix big problems that were the focus of [the RA]. This sort of project can help change community perspective but not individuals. There needs to be more specific suggestions on how to achieve each broad goal (e.g. affordable housing, protecting the environment). Such as providing small-step ideas for water conservation. Or ask, “Out of all these priorities, what can the government do, community do, and you do to make a difference?” There would be a ton of ideas. (D19)

Specific discussion about how individuals and the community could become more sustainable would be more appropriate during the action planning phase of the RA process rather than during the initial assessment (CCE 2000). CCE warns that getting bogged down on *how* to address community issues can stifle exploration and understanding of local resilience. Questions about how to change individual and collective behaviour are better addressed by targeted audiences, such as experts and directly affected stakeholders (Kotler and Lee 2008). This differs from the broad and representative sampling style recommended in 4.2 for the initial resilience assessment. Understanding social-ecological system resilience and addressing specific management challenges are two different aspects of the resilience management process. Since each aspect serves a different purpose, context-tailored approaches are required for community participation.

The ability to act upon RA recommendations also rests in the hands of the local government. At the time of writing, it was yet to be seen whether the Unity Plan Committee would act upon any of the recommendations that resulted from the RA. Lack of support from elected officials and municipal staff is a common barrier to effective participatory processes (Bracht and Tsouros 1990). Greater effort is required on the part of the researcher to garner commitment from decision-making bodies, as

discussed previously (4.1, 4.3). Failure to engage with conflict, politics, and power, has been identified as a common shortcoming of participatory projects (YHEP 2010, Involve 2005).

Recommendation 4. Use Participant Action Research for future RA case studies - To perform the Huntsville pilot RA, applied research and evaluation research were combined along with some elements of participant action research. Aligning future RA case studies with the participant action research paradigm would help improve community ownership of the RA, which may further facilitate transition from ‘talk’ to ‘action’.

Recommendation 5. Connect the resilience assessment to formal decision-making - Performing a more progressive form of community engagement where participants and authorities share decision-making power is expected to give the RA a more critical edge provided a discussion moderator is utilized. Future RA case studies should seek participation by the municipality’s committee charged with overseeing implementation of the sustainable community plan. This would directly connect the RA to formal decision-making and the benefits and challenges that accompany such affiliation (e.g. hierarchy and power dynamics).

4.4.3 Conclusion - was the pilot RA effective according to Criterion 4?

Eighty-one percent of the Delphi group thought the RA would be a valuable experience for other communities. In the future, participant feedback on this criterion should be solicited using an anonymous online survey to reduce the likelihood of over-reporting the utility of the RA. I conclude that the pilot RA would be a useful process for other communities once the recommendations provided in this chapter are integrated into the assessment template and tested through additional case studies.

Chapter 5 Conclusion

This chapter revisits the thesis questions (1.1), summarizes recommendations that emerged from the four evaluation criteria, and identifies areas warranting further research. Overall, this thesis developed a strong understanding of the community resilience assessment and participatory processes. This research strived to facilitate community transitions towards sustainable and resilient future states by using the RA to advance sustainable community planning.

5.1 Thesis questions revisited

i. Thesis question 1

Was the process used to pilot the RA effective according to criteria identified in Chapter 2?

The pilot RA was evaluated against four criteria, which provided lessons to improve application of the community resilience assessment. Conclusions for each criterion are summarized below:

Criterion 1. Data collection provided sufficient information to complete the RA

- The pilot RA addressed most of the issues and assessment questions posed in the Resilience Alliance (2010) workbook that could be reasonably extended to the community scale. Recommendations offered to improve application of the RA for communities are believed to be sound and appropriate.

Criterion 2. Diversity of stakeholders participated

- The snowball sampling technique collected an acceptable diversity of key informant participants for the Delphi exercise. For the charrette, self-selection sampling resulted in lower participant diversity than desired. The charrette sampling protocol should be altered to seek high participant diversity that is representative of the overall community. Future case studies should scale-up the sampling protocol in the pilot RA template to collect more participants, use a variety of engagement methods, and include under-sampled groups in the community.

Criterion 3. Participatory processes contributed to participant empowerment

- Eighty-one percent of the Delphi group experienced empowerment at least partially attributed to involvement in the RA. Minor personal changes were reported most often, such as understanding different perspectives and community issues. Thus, involvement in the RA fostered reflection and critical thinking for most participants. Three participants reported more substantial change (e.g. performing environmental advocacy) and nine participants felt the RA directly or partly motivated them to help implement Huntsville's sustainable community plan. Recommendations should be acted upon to improve the likelihood of participant empowerment through development of participatory skills and political understanding.

Criterion 4. RA process would be useful for other communities

- Eighty-one percent of the Delphi group thought the RA would likely be a valuable experience for other communities. In the future, however, participant feedback on this criterion should be solicited using an anonymous online survey to reduce the likelihood of over-reporting the utility of the RA. The researcher advocates the pilot RA as a useful process for other communities to test once suggested recommendations are integrated.

Recommendations that emerged from the four evaluative criteria focused on:

- Adapting the RA for community application and enhancing its utility for intended users;
- Improving participatory processes;
- Including a broad range of stakeholders;
- Building participants' capacity to continue resilience management;
- Supporting collaborative decision-making;
- Facilitating individual empowerment related to sustainability; and
- Sharing insights to benefit other communities using or considering the RA process.

The Huntsville case study provided evidence that supports existing literature on empowerment theory, community engagement, and social-ecological resilience management. Specifically regarding the need for participatory processes that: engage participants from diverse backgrounds in dialogue that challenges values and assumptions; connects to formal decision-making; confront and improve power dynamics; devolve a share of decision-making power to participants; and build participants' capacity and skills to continue the resilience management process.

Innovative significance was also found through the Huntsville case study. Important gaps and obstacles were discovered regarding application of the Resilience Alliance (2010) RA workbook to the community scale. The researcher and participants suggested new directions regarding the role of the RA process in motivating and enabling individual and organizational change; community outreach and awareness; and citizen involvement in assessing and managing local resilience. Questions were also raised about ‘next steps’ that should follow the initial resilience assessment: What assessment questions from the Resilience Alliance workbook are better addressed at a later stage? Who should be involved and how should action-planning and decision-making occur?

ii. Thesis question 2

How might lessons learned from the case study be applied to communities considering the RA process to foster sustainability?

This research was designed to help communities make the most of funding opportunities that support sustainable community planning by integrating resilience thinking into conventional community planning practice. This research aimed to improve the RA process for communities while acknowledging that problems and solutions will be different for each community, as each case is highly context-dependent. Insights gained from the Huntsville case study cannot be directly generalized to other communities. Practitioners, scholars, and citizens may be able to observe similar circumstances within their own communities and test the application of lessons learned in the Huntsville case study. Each community is highly complex and context-specific.

Criterion 4 specifically addressed thesis question 2. Seventeen out of twenty-one Delphi participants confirmed that the RA piloted in Huntsville would be a valuable experience for other communities (Table 9). Improvements suggested by participants were summarized in Table 10 and discussed in 4.4.2. Recommendations to improve the RA template based on all four evaluative criteria are summarized in 5.2. These recommendations could benefit other communities by improving community application of the RA and enhancing its utility for the municipality, participants, and broader community.

5.2 Summary of recommendations based on key findings

The evaluation of the pilot RA identified many potential improvements to the RA template tested in the Huntsville pilot study. Lessons learned through Criterion 1 are summarized below. An expanded

summary is provided in Appendix 2, which briefly describes each obstacle and information gaps and respective modifications and recommendations.

RA Step 1

- Obstacle 1 - Scaling up the main issues
- Information Gap 1 - Assessing general resilience features
- Information Gap 2 - Assessing community cohesion

RA Step 2

- Obstacle 2 - Utility of the historical profile table for community users
- Obstacle 3 - Input to construct the historical profile
- Obstacle 4 - Illustrating alternate states
- Information Gap 3 - Describing historical transition phases

RA Step 3

- Obstacle 5 - Identifying steps to encourage reorganization and renewal
- Obstacle 6 - Selecting key variables to track system change
- Information 4 - Improving understanding of thresholds

RA Step 4

- Information Gap 5 - Location of larger and small scales in the adaptive cycle
- Information Gap 6 - Illustrating cross-scale connections and threshold interactions for community users

RA Step 5

- Obstacle 7 - Discussing need for transformation
- Obstacle 8 - Directly connecting the RA to formal decision-making
- Information Gap 7 - Delineating next steps

Lessons from Criterion 2 to improve the Delphi exercise and charrette included:

1. Record Delphi participants' annual income and geographic location of home address
2. Extend participant sampling time period for the Delphi exercise
3. Involve individuals and organizations from under-sampled categories
4. Make the presence of decision-makers known to other participants
5. Display each participant's expertise
6. Request additional information from charrette attendees (demographic details)
7. Use sampling strategies to improve charrette participant diversity

Lessons from Criterion 3 to improve participant empowerment included:

1. Observe whether participants changed their minds about helping implement the sustainable community plan before / after RA participation
2. Use participatory techniques to build resilience management skills
3. Help build community buy-in for the sustainable community plan
4. Reduce likelihood of participants tailoring responses
5. Assess individual empowerment using psychology measures
6. Allow comparison of individual participant's demographic characteristics

Lessons from Criterion 4 to improve utility of the RA for other communities and participants:

1. Examine presence of critical thinking in participant responses
2. Test other qualitative methods to provoke more challenging dialogue
3. Equip RA participants with capacity to perform community outreach
4. Use Participant Action Research for future case studies
5. Connect the resilience assessment to formal decision-making

5.3 Areas of future research

Several areas that fell outside the scope of this study warrant future research:

- Monitor how the RA is utilized by the case community and how it impacts implementation of the sustainable community plan. This thesis focused on the effectiveness of the *process* used to pilot the RA. Follow-up research could examine the effectiveness of the pilot RA in terms of *outcomes* (e.g. evidence of capacity development, emergent knowledge, recognized impacts, social learning, and accountability; Blackstock et al. 2007).
- Test application of the RA template piloted in Huntsville - with or without revisions suggested in this thesis - in other communities that meet the selection criteria (e.g. small urban or rural communities) and/or larger municipalities.
- Improve the participant diversity achieved using the snowball sampling method for the Delphi exercise by engaging 'gate keepers' to traditionally excluded groups, e.g. low income families and individuals, youth, and seasonal residents. Gate keepers include trusted informal leaders /

champions and/or organizations within certain peer groups, such as lake and cottage associations, faith congregations, job gyms, etc.

- Examine how different stakeholder engagement methods contribute to participant empowerment. Does the use of social marketing behaviour change tactics within participatory processes facilitate participant empowerment?
- Explore how resilience assessments completed using more progressive community engagement techniques, such as partnership between stakeholders and decision-makers, differ from RAs completed using lower participation (e.g. public consultation). Does more progressive community participation result in better management plans in terms of completeness and quality of the RA report, support for implementation, and continued resilience management?
- Situate community engagement and individual empowerment in existing conceptual frameworks in planning and community psychology to analyze community transformation. What are the characteristics of community engagement methods employed in community RA and/or sustainable community planning processes that foster or hinder participants' capacity development to help create sustainable communities?
- Explore the use of participatory processes piloted in the Huntsville case study, particularly the Delphi exercise, to facilitate conflict management and relationship building in different contexts (e.g. communities in developing countries). Does the Delphi technique contribute to reconciliation between divergent stakeholder groups and/or governing bodies? Are there other participatory processes that were more effective?

5.4 Concluding remarks

This research explored the application of a resilience assessment template in an Ontario community to facilitate sustainable community planning. This inquiry was considered a 'knowledge-generating evaluation' that combined applied research and evaluation research in order to contribute to theoretical understanding and action (Patton 2002:220). From an applied research perspective, this study contributed to understanding and addressing complex societal problems related to resilience management and community planning. This study contributed to evaluation research by critically

examining the performance of the process used to pilot the RA and by working to facilitate community transitions towards sustainable future states.

The process used to conduct the pilot RA was tested against four evaluative criteria that focused on the adequacy of data collection and the participatory processes used to engage stakeholders. Participatory techniques used to pilot RA included methods that are novel within the resilience literature (e.g. Delphi exercise) and methods commonly used in community planning contexts (e.g. charrettes). This research illuminated obstacles and shortcomings within the Resilience Alliance (2010) RA workbook and offered recommendations to improve the utility of the RA for communities and participants.

This research demonstrated that the RA can serve as a pathway to integrate resilience thinking, sustainable community planning, community participation, and individual empowerment. The RA should not function solely as an information gathering and consensus-building tool. The process used to complete the RA should build public support for sustainability planning and empower participants to make changes to pursue sustainability. In future applications of the RA template, it will be critical to recognize the role the RA process does or should play in building human capacity and social capacity to engage with governance and power dynamics to manage community resilience. The RA template tested in this thesis, along with recommendations for its improvement, will help concerned citizens and municipalities uncover opportunities to facilitate community transformations towards social and ecological sustainability.

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Appendix 1

Data collection materials and participant consent forms

1. Email to municipal council and staff regarding appropriateness of Delphi methodology

*Informants were directed to read a three-page project summary and then answer the following questions:

1. Participant anonymity will be preserved for all involved in the Delphi exercise - this method was chosen because research in many fields has shown individuals are more comfortable, creative, and engaged when they can contribute their thoughts to a conversation anonymously. Granting participant anonymity is not meant to reflect any distrust or hostility between participants, it is simply an idea to help many different opinions / perspectives contribute to the process. Do you think participant anonymity is useful in this case? Yes

2. Is it reasonable for participants to commit to a Delphi exercise that would require about 6-8 hours total commitment with the bulk devoted to two interviews (each about two hours). Remember, each round of the Delphi exercise would entail an interview, chance to review the interview summary and an online discussion. Yes

3. Do you think participants will be comfortable and prefer using email / an online forum to correspond for part of the study? Interviews will be performed in-person but the dialogue period will occur using an online forum. Email (confidential)

4. Would the Huntsville Unity Plan task force be willing to participate in the study and/or recommend individuals pertinent to this study?

5. Would being entered in a draw for a \$125 gift certificate to a local restaurant be an appropriate incentive to participate in the study (the odds of winning would depend on how many people participate...potentially up to 70 people)? Yes

2. Delphi project introduction letter and consent form

Dear Delphi Participant,

Thank you for your interest in the study I am conducting as a part of my Master's degree in the Department of Environment and Resource Studies at the University of Waterloo under the supervision of Dr. Stephen Murphy (the Director of the Huntsville Summit Centre for the Environment). As someone with in-depth experience and knowledge about Huntsville's community and local economic issues, I would be eager for you to participate in this project, which looks at how Huntsville can plan for a sustainable and prosperous future. I would like to provide you with more information about what participating would involve and the prize you could win as a reward for your time and effort.

Project purpose: I'm collecting knowledge and opinions from community members to perform a checkup on resilience and innovation here in Huntsville. Resilience is the ability to bounce back from adversity - just like a boxer that can take a punch, stay on his feet, and avoid knock out punches. Innovation is the inventive creativity that allows a community to create and take advantage of opportunities to change a sticky situation. Put them together and you have the foundation of a sustainable and vibrant town! Once completed this project will provide a snapshot of the town's current situation and where improvements could be made to help shape a prosperous and sustainable future. I'm just the organizer of all the information - I hope this project will help the community come together and take action to reap the benefits of sustainability. Knowledge generated from this study could help Huntsville and other communities plan for sustainability. Recommendations resulting from this study may be used in the Town of Huntsville's new 'Unity Plan' to guide sustainable development - but is in no way guaranteed.

What participating involves: As a participant in this study, you would take part in two interviews with myself and two online discussions with other participants. This process was specifically designed to help participants learn about different perspectives and potentially work towards shared understanding, while making the best use of your time.

- **First interview:** You would provide your thoughts on how Huntsville got to where it is today and priorities for the future. An anonymous summary of your interview will be shared with the other participants through a password-protected website to help spark a candid conversation about Huntsville's future (your name is removed to protect your identity to the extent possible).
- **Online discussion:** During a one-week period, all participants will be able to log-on to the website (at your own convenience) to read and anonymously respond to each other's responses and vote for the best future scenario and immediate action strategies to guide Huntsville's development. You can also correct or add to your own interview summary. The top-three scenarios and action strategies will be presented at community workshops to collect broader public opinion.
- **Second interview:** A follow-up interview will be scheduled after the community workshops to collect your concluding thoughts on sustainable development in Huntsville. Similar to the process following the first interview, an online discussion will then be held with all participants (time permitting). Recommendations resulting from this study will be provided to Town Council to be considered for inclusion in the Town's "Unity Plan" to guide sustainable development.

Each interview typically lasts 1.5 - 2 hours and will be scheduled at your convenience in a mutually agreed upon location. Aside from the interviews, the rest of the project takes place 'online' which makes it easy for you to contribute at your convenience. Participation in this study is voluntary and will require a commitment of about 6-8 hours in total. Your anonymity will be protected to the very extent possible, as your name will be removed from all information you provide.

In appreciation of your time given to this study: Your name will be entered into a draw for one grand prize for a \$125 gift card to a local restaurant. Your odds of winning are based on the number of individuals who participate in the study. We expect approximately 20 individuals will take part in this part of the project. Names and contact information collected to draw for the prizes will not be linked to the study data in any way, and this identifying information will be stored separately, then destroyed after the prize has been provided.

Are there any risks to participating in this study? There are no known or anticipated risks to you as a participant in this study but you should be aware that complete anonymity cannot be fully guaranteed when working in a small group. All efforts will be made to protect your identity (your name will not be divulged and all identifying information will be removed from comments you provide as a part of this study). In addition, you may decline to answer any of the interview questions and you can withdraw from the study at any time without any negative consequences by advising the researcher. With your permission, the interview will be audio recorded to facilitate collection of information and later transcribed for analysis. All information you provide is considered completely confidential. Your name will not appear in any thesis or report resulting from this study; however, with your permission anonymous quotations may be used. All paper notes will be confidentially destroyed after four years and all electronic data will be stored indefinitely on a CD with no personal identifiers. Finally, only myself and my advisor Dr. Stephen Murphy in the Department of Environment and Resource Studies at the University of Waterloo will have access to these materials.

Please contact me if you have any questions! If you have any questions about this project or would like additional information, please contact me at 289-407-0475 or by email at h2davis@uwaterloo.ca. You may also contact my supervisor Dr. Stephen Murphy 519-888-4567, ext. 35616 or by email sd2murph@uwaterloo.ca.

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at 519-888-4567 Ext. 36005 or ssykes@uwaterloo.ca.

I hope that the results of my study will be beneficial to Huntsville's community and to sustainable development planning and research across Canada. I very much look forward to speaking with you and thank you for your assistance with this project. If you would like to participate please notify me and review the consent form below.

Yours Sincerely,

Heather Davis, B.Sc. (Hons), M.E.S. Candidate
University of Waterloo - Huntsville Summit Centre for the Environment
Department of Environment and Resource Studies
University of Waterloo

[Project advisor] Dr. Stephen D. Murphy, B.Sc. (Hons), Ph.D.
Professor, Director of the UW - Huntsville Summit Centre for the Environment
Department of Environment and Resource Studies
University of Waterloo

PARTICIPATION CONSENT FORM (DELPHI EXERCISE)

By signing this consent form, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I have read the information presented in the information letter about a study being conducted by Heather Davis of the Department of Environment and Resource Studies at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my responses.

I am also aware that excerpts from the interview may be included in the thesis and/or publications to come from this research, with the understanding that the quotations will be anonymous.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at 519-888-4567 ext. 36005.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

YES NO

I agree to have my interview audio recorded.

YES NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES NO

Participant Name: _____ (Please print)

Participant Signature: _____

Witness Name: _____ (Please print)

Witness Signature: _____

Date: _____

3. Community Charrette information and consent forms - for volunteers

Dear Community volunteer,

Thank you again for being a volunteer at the community workshop I'm hosting as part of my Master's degree at the University of Waterloo. The event will take place on Wednesday September 15th at the new university building on Forbes Hill Road. Please meet me and the other volunteers at the front door to the building at 6 pm. We will get acquainted, run through the organization of the evening, I'll provide you with the materials you will need for the evening and answer questions. Please read the brief project summary and 'volunteer guideline' below so that you can feel more familiar and prepared before we meet on Sept 15. Please don't hesitate to contact me with *any* questions you may have, email: h2davis@uwaterloo.ca or telephone: 289-407-0475.

Project summary: My Master's research project explores how resilience and innovation can be improved at the local level in order help 'sustainable community plans' (like the Huntsville Unity Plan) have greater impact and survive life's ups and downs. Sustainability isn't just about balancing economic, environmental and social concerns - to really last a sustainable town must be resilient and innovative. *Resilience* is the ability to bounce back from adversity just like a boxer that can take a punch, think ahead and avoid knock out punches. *Innovation* is a key ingredient of resilience - it's that inventive creativity that allows a community to create and seize new opportunities.

Huntsville has served as the 'case study' for my project. Over the last two months, a diverse group of 22 community members (called the '*think tank*') helped me do a check-up on resilience and innovation in Huntsville. A snapshot was created that shows the town's current situation and where improvements could be made to help shape a desirable future. The group boiled-down several different visions of Huntsville's long-term future 25 years from now and short-term actions that need to happen for the community to head in a desirable direction. Presenting these results to the community workshop is the next step, because when it comes to planning for the future and changing proactively, the more minds that can be put together the better!

The purpose of the workshop is to allow a new set of community members to learn about and share their thoughts on Huntsville's long-term future and how to increase local resilience and innovation (the two cornerstones of sustainability). The workshop participants will look at three long-term future scenarios and the high priority action strategies that need to happen for each (as identified by the original community *think tank*). Participants will then break into small groups, moderated by a community volunteer or one of my colleagues, to carefully examine one scenario. They will be asked to share their thoughts on how to best shape a prosperous and sustainable future by examining the problem through 'resilience-coloured glasses'.

Expected outcomes: This project strives to help the community come together and take action to reap the benefits of becoming a cutting-edge sustainable town. Recommendations resulting from this study may be used in the Town of Huntsville's 'Unity Plan' to guide sustainable development (*not guaranteed*) and will help guide other sustainable communities.

Workshop Volunteer Guideline

The following guidelines will help you become familiar with how the workshop will be run.

- 6:00 pm Volunteers meet me at the front doors to the university!
- 6:45 Participants arrive and sign-in to the workshop
- 6:45-7:05 Participants free to enjoy snacks, refreshments, look at the scenario posters
- 7:05 Welcome and introductory presentation by myself
- 7:20 Break into small group discussions with 8-10 participants each, 1 volunteer discussion leader and 1 volunteer note-taker
 - *Group discussion will occur in separate rooms on the main floor
- 7:20-8:10 Group discussion period (see detailed instructions below)
- 8:10-8:30 Full audience reconvenes and each 'discussion leader' shares the 2-3 minute *summary* from their own discussion group (see below)
- 8:30-8:50 Open floor for additional dialogue, questions, ideas...
- 8:50 Wrap-up and conclusion by myself
- 9:00 Workshop finished (volunteers stay 10 mins afterwards to meet with me)

Group discussion period

Your group will be assigned one positive scenario of Huntsville's long-term future to examine against the negative future scenario using four discussion questions. Looking at polar different scenarios often helps to get conversation going. Things to do as a volunteer:

- Bring a watch and keep track of time
- Shepherd participants to the right location for your group discussion (to be assigned)
- You have until 8:10 pm for the discussion period - please do not go over-time, if you don't get through all the questions that's ok just try your best
- Before the verbal discussion begins please remind participants to jot their comments down on the 1-page double-sided survey form (10 mins max). In a group discussion, not everyone will talk for all four questions so having written responses ensures their point of view is 'heard'
- Try to keep your group on track, get through all four questions and hear from everyone
- Don't spend too long on the first two questions (no longer than 8-10 minutes each), shepherd the group towards questions 3 and 4 - this is where I really need the community's insight
- Use the last five minutes to give the group a summary of key points shared during the discussion. The note-taker should provide the discussion leader with a written summary to read aloud to the group and then incorporate any revisions.
- Discussion leaders present their 2-3 minute summary to the full workshop audience
- Please stay 10 minutes after the workshop to share with me how the discussion went

Thank you for limiting sharing your personal opinions during the group discussion - please share your thoughts with me on your survey form!

Suggestions for discussion leaders:

- **The group or some participants don't want to talk** - wait (silence can motivate conversation), prod "what do you think about this...", ask quiet participants to read what they wrote on the survey form (if they abstain that's ok)
- **Early questions are taking too much time** - try to 'shepherd' the group towards questions 3 and 4. You can redirect a lively but long-winded conversation on early questions by saying "those are great points and we're going to get into more detail on the next question" or "I'd like to spend some time on something that was said earlier / on a

new topic” (choose a topic that bridges into the next question). Remind the group how much time is left.

- **Ramblers and long-winded participants** - acknowledge that you have heard and understand the importance of the person’s comment and ask a different participant to share their opinion, if the rambler is stuck on something trivial or on a ‘pet-issue’ snatch the first opportunity to interrupt (e.g. while the person takes a breath) or say “sorry I’m going to have to interrupt you, though I hear your point, because we have more questions / other people to hear from”.
- **Staying on topic** - remind the group to look at sustainability through resilience-coloured glasses, ask “how would that (action) build / erode resilience?”, reread the definition of resilience and how it is important for a town to be sustainable and prosperous (provided at workshop)
- **Little time left to ask final question and sum-up** - all is not lost because participant responses are on the survey form so just do what you can with the time you have. Asking the group to create a list is a good way to speed things up (e.g. “Ok we’ve got just a few minutes left so let’s quickly list the *best* short-term action strategies to increase Huntsville’s resilience). You must leave yourself enough time to provide the group with an oral summary of the discussion’s key points (even if the group hasn’t fully answered all the questions)

Suggestions for note-takers:

- **Keep note taking simple:** I recommend taking point-form notes of what each participant shares (I DO NOT need a full ‘record’ of the discussion) and as the discussion progresses, underline or highlight themes that are emphasized several times.
- **Quickly summarize the discussion:** Use these highlighted ‘key points’ to quickly prepare a summary for the discussion leader during the last five minutes of the discussion period.
- **Your detailed and summary notes are important to me** - thank you for writing clearly! Please use different coloured pens / highlighters if that works well for you!

Again, thank you so much for your assistance with my Master’s research project - you have all done me such a great favour. I really couldn’t run the workshop without your efforts! Please let me know if you have any questions or concerns. -- Sincerely, Heather

Agreement to Participate (Charette volunteers)

By signing this consent form, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I have read the information presented in the information letter about the workshop being facilitated by a Huntsville community member or colleague of the researcher who is not affiliated with the university. I have had the opportunity to ask any questions related to this workshop, to receive satisfactory answers to my questions, and any additional details I wanted.

- I am aware that I may withdraw from the workshop without penalty at any time by advising the facilitator of this decision.
- In appreciation of my time given to this session, I am aware that I will be entered in a draw to win a variety of prizes (e.g. gift certificates).

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I understand that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at 519-888-4567 ext. 36005 or ssykes@uwaterloo.ca.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this session and to keep in confidence information that could identify specific participants and/or the information they provided.

YES NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES NO

I agree to share the following information to be viewed by the researcher and used in aggregate only.

YES NO

(Circle) I'm a permanent or seasonal resident OR from elsewhere in the Muskoka Region: _____

Age: 18-29 __; 30-49 __; 50-69 __; 70-89 __; 90+ __ Gender: F __; M __ Occupation: _____

Highest earned degree of education: _____ (Circle) I'm most interested in social, economy, or environment

Print Name

Witness

Signature

Signature

Date

4. Information letter and consent form for Charrette participants

Dear Participant,

Thank you for your interest in the project I am completing as part of my Master's degree at the University of Waterloo. I am holding a community workshop for the public to come visit Huntsville's new university building and take part in a brainstorming session to help Huntsville become more resilient and innovative by planning for a sustainable, desirable future 25 years down the road from now. Sustainability isn't just about balancing economic, environmental, and social concerns, to really last a sustainable town must be resilient and innovative. Resilience is the ability to bounce back from adversity: just like a boxer that can take a punch, think ahead and avoid knock out punches. Innovation is that inventive creativity that allows a community to create and seize opportunities to change a sticky situation.

Purpose of this project: Over the last two months, a diverse group of 22 community members helped me do a check-up on resilience and innovation in Huntsville. A snapshot was created that shows the town's current situation and where improvements could be made to help shape a desirable future. The group hashed-out several different visions of Huntsville's future and specific top-priority actions that need to happen as soon as possible. I invite you to share your thoughts at the community workshop to help refine these scenarios and action strategies.

I want to hear your opinion on which future vision Huntsville should work towards and what top-priority actions need to happen soon! The workshop will take place Wednesday **Sept 15 from 7 to 9 pm** at the new university building on Forbes Hill Road (formerly Town Line Road East off of Brunel Road). Recommendations resulting from this study may be used in the Town of Huntsville's 'Unity Plan' to guide sustainable development (*not guaranteed*) and will help guide other sustainable communities!

What participating involves: As a participant in this workshop you would commit to attending the two hour workshop, looking at several future scenarios, and taking part in a 30 - 45 minute small group discussion on Huntsville's future and top-priority action strategies. The discussion will be facilitated by a community member or one of my colleagues who is not affiliated with the university. Participation in this study is voluntary and your name will be removed from all information you provide.

There are no known or anticipated risks to you as a participant in this project: You may decline answering any questions or withdraw from the project if you so wish. Given the group format of this workshop we will ask you to keep in confidence information that could potentially identify a participant or his/her comments. My report will use only anonymous quotations. The information collected from the workshop will be kept for a period of four years in my advisor's office at the University of Waterloo in a locked cabinet. All paper notes will be confidentially destroyed after four years and all electronic data will be stored indefinitely on a CD with no personal identifiers. Only members of this research team will have access to the information.

Confirm your spot! All adult community members are welcome to attend the community workshop, except people who have already had an interview with me. Seating is limited so please confirm your attendance if you haven't already (see contact information below). In appreciation for your time, free refreshments and snacks will be provided and you will be entered in a draw for prizes (e.g. gift certificates).

If you have any questions about participation in this workshop, please feel free to contact me by email at h2davis@uwaterloo.ca or by phone at 289-407-0475. You may also contact my supervisor, Dr. Stephen

Murphy at sd2murph@uwaterloo.ca or by phone at 519-888-4567, ext. 35616. Please contact me if you are interested in receiving a copy of the workshop summary and outcomes.

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at 519-888-4567 Ext. 36005 or ssykes@uwaterloo.ca.

I hope that the results of my study will be beneficial to Huntsville's community and to sustainable development planning across Canada. I very much look forward to speaking with you and thank you for your assistance with this project. If you would like to participate please notify me and review the consent form below.

Yours sincerely,

Heather

Heather Davis, B.Sc. (Hons), M.E.S. Candidate
University of Waterloo - Huntsville Summit Centre for the Environment
Department of Environment and Resource Studies
University of Waterloo
Email: h2davis@uwaterloo.ca
Phone: 289-407-0475

[Project advisor] Dr. Stephen D. Murphy, B.Sc. (Hons), Ph.D.
Director of the UW - Huntsville Summit Centre for the Environment
Professor, Department of Environment and Resource Studies
University of Waterloo
Email: sd2murph@uwaterloo.ca
Phone: 519-888-4567, ext. 35616

Agreement to Participate (Charrette participants)

By signing this consent form, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I have read the information presented in the information letter about the workshop being facilitated by a Huntsville community member or colleague of the researcher who is not affiliated with the university. I have had the opportunity to ask any questions related to this workshop, to receive satisfactory answers to my questions, and any additional details I wanted.

- I am aware that I may withdraw from the workshop without penalty at any time by advising the facilitator of this decision.
- In appreciation of my time given to this session, I am aware that I will be entered in a draw to win a variety of prizes (e.g. gift certificates).

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I understand that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at 519-888-4567 ext. 36005 or ssykes@uwaterloo.ca.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this session and to keep in confidence information that could identify specific participants and/or the information they provided.

YES NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES NO

I agree to share the following information to be viewed by the researcher and used in aggregate only.

YES NO

(Circle) I'm a permanent or seasonal resident OR from elsewhere in the Muskoka Region: _____

Age: 18-29 __; 30-49 __; 50-69 __; 70-89 __; 90+ __ Gender: F __; M __ Occupation: _____

Highest earned degree of education: _____ (Circle) I'm most interested in social, economy, or environment

Print Name

Signature

Signature

Date

Witness

5. Charrette invitation flier (adjusted to fit this document)

Come see the beautiful new University!
Explore what “Resilient Huntsville” could look like in 25 years

Huntsville’s *first* University of Waterloo student
invites you to a community workshop!
SAVE THE DATE: Wednesday Sept 15, 7:00-9:00 pm
At the new university building on Forbes Hill Rd
(on old Town Line Road East off Brunel Road)

Details

Hear about research happening at the University
Explore scenarios of what Huntsville could look like in 25 years
Take part in a small group discussion on how to make the town more resilient
Results to help Huntsville and other communities become sustainable

You will be entered in a draw for prizes!
Enjoy free treats and refreshments

Contact

For more info or to confirm your attendance (seats are limited!) contact me:
Heather Davis
Department of Environment and Resource Studies
Phone: 289-407-0475
Email: h2davis@uwaterloo.ca

Want a sneak peek? I’d be happy to visit your group to perform a presentation on my research
to help people decide if they would like to attend the workshop

6. Charrette “handout” provided to all participants and volunteers

*This form was adjusted to fit this document, the original had large font for ease of reading and graphic design.

Exploring Huntsville’s Future

Thinking about Huntsville’s future 25 years from now gets us to imagine a desirable future and what stepping-stones need to be laid down to head in the right direction.

A sustainable town must deal with environmental, social, and economic concerns, but in order to really last it must also be *resilient* and *innovative*.

- Being resilient means bouncing back from adversity and adapting well to stress and change, while nurturing creativity to keep the town revitalized and strong.
- Innovation is that inventive creativity to seize and create new opportunities (e.g. to get out of a sticky situation).

Look through Resilience-coloured glasses...

And you’ll see a few things quite clearly!

1. Society is dependent on the natural environment
2. We are not in a museum - change is constant
3. We must look at our community within the bigger picture
4. Sustainability is not like bicycle repair, it is complex like raising a child

A tour of Huntsville in the year 2035... three scenarios

A: “Stay the same + opportunities and greener”

Similar small-town size, good employment and quality of life for all levels of the community helps retain youth. The environment would be in better shape than today.

B: “Careful growth + magnet for green research and youth”

Dense urban core or several pockets of growth in rural areas, all ages and professionals attracted to the high quality of life. Focus on environmental research and good jobs.

C: “Big-like-Barrie + environmental destruction”

Urban sprawl, destroyed forests and lakes, lower quality of life and poor paying jobs in tourism and service industries make it difficult to keep youth and bright minds in town.

7. Charrette participant questionnaire form

Before the discussion starts, please jot down your opinion for the four discussion questions below. You will help make the volunteer note-taker's job a lot easier and ensure your point of view is 'heard' by the researcher. **Only anonymous quotes will be used.*

1. Do you think your group's positive future scenario is actually *sustainable*? How come?
2. Do you think the positive future scenario is very *resilient*? How come?
3. What actions could **reduce Huntsville's resilience**?
4. What are the most important 'stepping-stones' that need to be put in place in the short-term to **increase the resilience** of your positive future scenario?

Other Comments? (E.g. different future scenario that you envision 25 years from now) Remember to look through resilience-coloured glasses and look at the bigger picture!

Please note, the original charrette questionnaire form was double-sided to provide space for participants to write comments.

Participant ID#

8. Delphi Round 2 - Charrette summary used during second interview

* This form was adjusted to fit this document, the original had large font for ease of reading, graphic design, and was a single page double-sided document.

* Also note that the Delphi group was colloquially referred to as the 'Think Tank'.

Quick Summary

Thinking about Huntsville's future 25 years from now gets us to imagine a desirable future and what stepping-stones need to be laid down to head in the right direction. A sustainable town must deal with environmental, social, and economic concerns, but in order to really last it must also be *resilient* and *innovative*.

- Being resilient means bouncing back from adversity and adapting well to stress and change, while nurturing creativity to keep the town revitalized and strong.
- Innovation is that inventive creativity to seize and create new opportunities (e.g. to get out of a sticky situation).

Remember to look through Resilience-coloured glasses

1. Society is dependent on the natural environment
2. We are not in a museum - change is constant
3. We must look at our community within the bigger picture
4. Sustainability is not like bicycle repair, it is complex like raising a child

The Think Tank's long-term vision... Huntsville in 2035

When the Think Tank imagined Huntsville 25 years from now, it was clearly essential to protect quality of life and tackle the town's tough problems, such as:

- Local attitudes that supports positive change and sustainability
- Year-round jobs with higher wage
- Protect the environment
- Affordable housing
- Strong political leadership on sustainability
- Population growth

Based on how Huntsville deals with these problems, the Think Tank created three popular scenarios, which were then presented to 55 new people at a community workshop:

Scenario A: "Stay the same + opportunities and greener"

Similar small-town size, good employment and quality of life for all levels of the community helps retain youth. The environment would be in better shape than today.

Scenario B: "Careful growth + magnet for green research and youth"

Dense urban core or several pockets of growth in rural areas, all ages and professionals attracted to the high quality of life. Focus on environmental research and good jobs.

Scenario C: "Big-like-Barrie + environmental destruction"

Urban sprawl, destroyed forests and lakes, lower quality of life and poor paying jobs in tourism and service industries make it difficult to keep youth and bright minds in town.

The Think Tank's short-term action strategies

The Think Tank came up with a long list of specific actions that must happen in the short-term to drive Huntsville in a desirable direction - the 7 most common were:

- Public education to increase local motivation to change for the better
- Any development must pass the 'sustainability test'
- Strong environmental by-laws
- Invest in knowledge and research industries
- Improve community services (education, health care, social caring...)
- Passionate leadership that is inclusive and advances sustainability
- Celebrate success to keep momentum going!

Workshop results in a Nutshell

Future scenarios A and B were examined in-detail by small discussion groups (C was used for comparison and to get conversation going). Each group was asked four questions:

1. Is the scenario actually sustainable?
2. Is the scenario very resilient?
3. What actions could reduce Huntsville's resilience?
4. What are the most important short-term actions to increase resilience?

Overall, the workshop emphasized four key points:

- We need good political leadership, meaningful community engagement & communication
- Jobs are the key to moving forward or backwards
- We need to focus on people, e.g. public education & address social inequity
- Growth and development aren't the objective - the goal is quality of life for all people

Insights from Workshop

Many of the priorities mentioned by the Think Tank were also highlighted during the workshop. I'd like to share a few different points commonly mentioned in the workshop:

For Scenario A "Stay the Same", many workshop participants mentioned:

- It's hard to stay the same: how can we realistically limit population, control powerful economic interests, keep the community united and increase self-sufficiency?
- Change is constant and we need to think of the bigger picture, climate change and dependency on expensive oil could drastically erode Huntsville's positive future.
- We need strict rules to abide by that are supported by accountability and consequences.

For Scenario B "Careful Growth", many workshop participants mentioned:

- Community will (not just political will) is essential to avoid complacency! We must plan carefully and fully invest (financially and intellectually) to shape a desirable future
- Demographics (not just jobs) will seriously shape Huntsville's future.
- We must carve out our niche economic market and provide incentives to attract people.
- We must adapt ahead of time and always be flexible in order to deal with unpredictable events, such as more natural disasters due to climate change.

Appendix 2

Summarized table of recommendations from Criterion 1 to improve data collection and adaptation of the RA template for community application

1. Summary of Criterion 1 information gaps, obstacles, and suggested modifications / recommendations to improve application of the RA to the community scale

Obstacle or Information Gap	Modification / Recommendations
RA Step 1 - Describing the current system	
<p>Obstacle 1 Scaling up the main issues - The Resilience Alliance (2010) recommends selecting just 1-2 main issues to focus the RA while the CCE (2000) template examines resilience across four broad areas: economic development, community cohesion, leadership, and governance.</p>	<p>Three main issues were selected by Delphi participants and six related ‘community resilience characteristics’ were examined in order to describe the system and key attributes that are valued by stakeholders.</p>
<p>Information Gap 1 Assessing general resilience features - The six ‘Resilience Characteristics’ used to assess general community resilience did not focus on the general resilience characteristics recommended by the Resilience Alliance (diversity, openness, reserves, tightness of feedbacks, and modularity).</p>	<p>Provide recommendations to strengthen community resilience and make recognizing and monitoring general resilience a ‘next step’ for users of the RA. Provide a guide that directs decision-makers and managers through key general resilience considerations. A subsequent RA round should assess general resilience in greater detail.</p>
<p>Information Gap 2 Assessing community cohesion - The case study did not explore conflict management or social networks.</p>	<p>Include discussion about conflict resolution relevant to the three main issues and social networks (e.g. isolated groups, groups that facilitate or inhibit cohesion and diffusion of information).</p>
RA Step 2 - Historical timeline	
<p>Obstacle 2 Utility of the historical profile table for community users - Resilience Alliance recommends identifying pulse or press events, frequency of occurrence, time for recovery, components most affected, magnitude of impact, associated changes, and adaptive cycle phase. This level of technical language and detail was not perceived by the researcher to be helpful for use by community members and leaders.</p>	<p>Three columns used to identify key attributes for each major era:</p> <ul style="list-style-type: none"> ▪ <i>Agent of change</i> - disturbance or innovation believed to trigger an event; ▪ <i>General impact</i> - on larger scales, e.g. region, nation, international; and ▪ <i>Impact on community</i> - specific changes observed in the focal system at least partially attributed to the change agent. <p>Sufficient description is provided to allow similarly competent practitioners to deduce information from the excluded categories.</p>
<p>Obstacle 3 Input to construct the historical profile - The researcher was the primary actor that sifted trivial events from significant events to assemble the SES historical profile.</p>	<p>Share the historical profile with the Delphi group, plus local historians if sufficient expertise is not present already, during the first online discussion. Direct participants interested in local history to review the historical timeline.</p>

<p>Obstacle 4 Illustrating alternate states - Alternate states specific to each of the three main issues could be deduced from the historical profile table by a competent RA practitioner, but may not be clearly evident to intended users of the RA - the community members and leaders.</p>	<p>Illustrating major alternate states from the past would help summarize key points from the historical profile table. Such an illustration would allow past alternate states to be more easily observed and discussed by participants and users of the RA report. Would also help prompt discussion about transition phases.</p>
<p>Information Gap 3 Describing historical transition phases - The pilot RA focused on potential future states and how the transition from the current state to the future scenario could occur. Only thin description could be provided for most of the transition phases in the historical profile.</p>	<p>Previous suggestions could help bring more attention to describing past transition phases, such as involving stakeholders and local historians in constructing the historical timeline (Obstacle 3) and illustrating past stable states for each main issue (Obstacle 4).</p>
<p>RA Step 3 - Exploring future scenarios</p>	
<p>Obstacle 5 Identifying steps to encourage reorganization and renewal - Participants were introduced to the resilience thinking concepts, including facilitating renewal, before focus group discussion began. The focus group questions collected feedback from participants about actions that could reduce or increase resilience of positive scenarios. Probing question(s) regarding action strategies to encourage renewal were not included.</p>	<p>A stronger ‘educational component’ may be appropriate to ensure participants understand resilience thinking concepts. For example, include more detailed explanation of the renewal phase in the charrette’s introductory speech. The fact few actions strategies suggested by participants dealt with encouraging renewal may be a product of limited participant sample diversity.</p>
<p>Obstacle 6 Selecting key variables to track system change - A list of key variables that drive change in the focal system is provided based on input from participants. The Resilience Alliance recommends selecting 3-4 key variables to track change in the system over time. This task was posed to the users of the RA report as a ‘next step’ in the RA process.</p>	<p>Engage participants in selecting 3-5 key variables in order to track change in the focal system over time. Identifying this subset of key monitoring variables could be done during the initial RA or by following up with the group(s) responsible for implementing the RA.</p>
<p>Information Gap 4 Improving understanding of thresholds - A variety of potential thresholds of concern identified by participants are listed but the assessment question “<i>What steps are needed to improve understanding of thresholds?</i>” is highlighted as a next step consideration for users of the RA report.</p>	<p>Select 3-5 high priority thresholds to allow closer examination of key slow variables, interaction effects and connections to other scales. This task could be done during the initial RA or by following up with the group(s) responsible for implementing the RA.</p>

RA Step 4 - Adaptive cycle and important connections	
Information Gap 5 Location of larger and small scales in the adaptive cycle - The community's location in the adaptive cycle is discussed but it is not related to the location of larger and smaller scales in the adaptive cycle. The data collection process did not provide sufficient information to prioritize which scales had the <i>most</i> influence over the focal system or to determine the location of these scales in the adaptive cycle.	Participants were asked to identify forces inside and outside the community that wield considerable influence over the community's fate. To address Info Gap 5, ask participants to prioritize which scales have the strongest influence. To surmise where different scales are located in the adaptive cycle, key informants could be asked to comment on the location of their respective organization in the adaptive cycle (e.g. Region of Muskoka, Arts sector, voluntary sector, small businesses).
Information Gap 6 Illustrating cross-scale connections and threshold interactions for community users - The Resilience Alliance (2010) recommends illustrating the thresholds and interaction effects most relevant to the focal system. This task is posed as a next step in the RA process to be performed once 3-5 priority thresholds have been selected for closer examination (Information Gap 4)	Once 3-5 thresholds are selected (Information Gap 4), it would be useful to construct diagrams to show how connections to larger and small scales impact the focal system and how interacting thresholds may trigger cascading change. It would then be appropriate to list specific slow variables, interaction effects, and connections to other scales for each threshold.
RA Step 5 - Acting on the resilience assessment	
Obstacle 7 Discussing need for transformation - The RA did not sufficiently address the need for system transformation (fundamental change in system components, relationships, and feedback across scales; Resilience Alliance 2010:48).	For human communities in North America, transformation is required to address rampant resource consumption and inequality. Discussion within the RA participatory process should include <i>how</i> to facilitate transformation and understanding that it is necessary. This may require more controversial dialogue topics and injecting a stronger 'social change' dimension into the RA framework.
Information Gap 7 Delineating next steps (e.g. action-planning process) - The Resilience Alliance framework does not provide much detail regarding next steps and how to act on the assessment.	Use the CCE framework, which provides good instruction on how to continue community engagement and move through subsequent stages of priority setting, decision-making, and action planning to focus resilience management at the community-scale following the RA.
Obstacle 8 Directly connecting the RA to formal decision-making - The interest and verbal non-binding support of Town Council members and Unity Plan Task Force members were necessary elements that guided selection of the case community.	Secure more definitive support and desire of decision-makers to utilize RA results before the project commences. Endorsement by elected officials could deter participation by those with cynical or suspicious perceptions of the role and sincerity of municipal government. Politics and

<p>There was, however, no assurance that resulting recommendations would be acted on in any way. Lack of concrete connection between the RA and formal-decision making can strongly inhibit RA utility.</p>	<p>power are inherent parts of community planning and of participatory processes meant to impact formal decision-making (YHEP 2010). Thus, more concrete engagement with municipal government is required to enhance the end-result effectiveness of the community RA.</p>
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Appendix 3

Huntsville Resilience Assessment Case Report
Official report released to community of Huntsville, ON, on April 18, 2011

(75 pages including appendix)

**“Newsletter style” 4-page summary of the Huntsville RA available at
www.huntsville.ca/en/townHall/HuntsvilleStudies.asp**

Research that matters for Huntsville - Results ready for Action
Huntsville's Waterloo Summit Centre for the Environment

**Putting Huntsville's resilience to the test
to squeeze the most value and benefits out of
the Unity Plan**

Results of the 2010 Huntsville Resilience Assessment

UNIVERSITY OF
WATERLOO

Heather Davis, Candidate M.E.S.
University of Waterloo
Department of Environment and Resource Studies
h2davis@uwaterloo.ca

Official Report - April 18, 2011

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Project Summary

Why care about resilience?

This project put Huntsville's resilience to the test in order to squeeze the most value and benefits out of the Town's sustainability guide - the Unity Plan. Sustainability demands more than balancing a vibrant economy, healthy environment, and social justice. To really last, a sustainable town must be resilient and innovative - able to bounce back from adversity and adapt quickly. Huntsville's Unity Plan can become more effective and durable by integrating and actively managing local 'resilience'.

The **Huntsville Resilience Assessment (HRA)** is meant to be an ongoing process that engages many diverse community stakeholders in periodically evaluating the progress of the Unity Plan. This evaluation tool can help Huntsville implement, monitor, and spur evolution of the Unity Plan by:

- Supporting learning from failure / less than complete success as a meaningful outcome and reporting on learning as a form of authentic and meaningful accountability
- Using diverse and critical perspectives to examine assumptions, test progress, reaffirm its vision, and continue tenaciously adapting to day-to-day realities

The resilience assessment process in a nutshell

I conducted the HRA to help Huntsville implement and strengthen the Unity Plan - this research project was part of my Master's degree at the University of Waterloo. Sixty-eight community stakeholders were involved in evaluating Huntsville's abilities, weaknesses, and key sources of resilience. By looking at sustainable community planning from a different perspective, the HRA revealed new insights and strategic management options. Three high priority issues within the Unity Plan were specifically focused on:

1. Growing the knowledge-economy
2. Land-use planning to protect the natural environment
3. Community engagement in decision-making

Results of the Huntsville Resilience Assessment

Results were drawn together based on the knowledge and opinions shared by community stakeholders, literature review, and my observations as a researcher. Focus is placed on how Huntsville can encourage positive change and cope effectively with stress and unwelcome surprises.

Key results include:

- Current 'baseline conditions' for six important sources of community resilience
- Historical timeline of Huntsville's past responses to stress and surprise (and lessons learned!)
- Future scenario exploration to identify action strategies to start shaping a desirable future
- Potential threats and vulnerabilities
- Strategies to enhance Huntsville's resilience in the short- and longer-term
- Recommendations to improve the Unity Plan

Who should read this report?

This report was designed to be accessible and engaging for the Town Council, Unity Plan Community Implementation Teams, and individuals, groups, & organizations interested in sustainability and community planning. It is hoped the Town Council and Unity Plan teams will consider the information and recommendations within this report and manage 'community resilience' as an integral part of their planning and management decisions.

Preface

The Huntsville Resilience Assessment was completed as part of my Master's research at the Huntsville-University of Waterloo Summit Centre for the Environment, Department of Environment and Resource Studies (Advisor Dr. Stephen Murphy). I designed the HRA blueprint based on templates produced by the Resilience Alliance (2010, 2007) and Centre for Community Enterprise (CCE 2000). I chose the Town of Huntsville to pilot the RA, which makes Huntsville one of the first communities in Ontario to undergo a resilience assessment to help implement its sustainable community plan.

If you are interested in a critique of the effectiveness of the resilience assessment process, please refer to my thesis report (available on the University of Waterloo website summer 2011).

Definitions: Terms and other key words highlighted in **bold purple** font are defined in the glossary at the back of the report.

Acknowledgements

The **Huntsville Resilience Assessment (HRA)** would not be possible without the support of many thoughtful people in Huntsville and beyond. I extend my deepest thanks to the twenty-two people who formed the HRA Think Tank and generously contributed their time, thoughts, and ideas to help complete this assessment. A successful HRA community workshop was held in September 2010 with the help of community volunteers who promoted the event and led focus group discussions. Forty people took part in the workshop discussion about Huntsville's resilience and future.

The 2010 Town Council and Unity Plan working group helped jump-start the early stages of the HRA along with other valuable Huntstivillians. Their genuine interest, enthusiasm, and helpful suggestions made a world of difference. Several people deserve special thanks for their ongoing assistance throughout the project: my supervisors Dr. Stephen Murphy and Dr. Sarah Wolfe, former Councillor Mary Jane Fletcher, and colleague Tamara Harbar. I would also like to thank the people who reviewed the draft report before its official release and provided valuable feedback that shaped the final report and the brief 'summary newsletter' (a separate document).

Finally, I extend my thanks to the Resilience Alliance and Center for Community Enterprise who created the resilience assessment frameworks upon which I created the HRA.

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Introduction

This section outlines:

- The 'resilience approach' to sustainable community planning
- The five-step process used to complete the resilience assessment
- How information was gathered and who participated in the HRA

i. The resilience approach to sustainable community planning

Sustainability means providing wellbeing and opportunities for improvement to current generations without degrading the opportunities of future generations. As stated by a community participant in this project: "Sustainability is not maintaining the current situation so that it lasts forever - it's not just keeping that snapshot of today's status quo. Sustainability requires planning to support a variety of pillars - environment, social, economy, health, and culture."

Resilience forms the foundation of a sustainable and vibrant town - it's the ability to cope with and learn from adversity, adapt and be changed yet retain basic structure and ways of functioning (McLaughlin 2010). The **resilience approach to sustainability** is a way to understand a community and its relationships to the natural environment. It differs from mainstream approaches to sustainability in several ways:

- Sees that growth and efficiency alone often lead communities into fragile situations
- Accepts change and uncertainty as constant forces & recognizes limits to control and predictability
- Emphasizes continual learning, recovery, and flexibility in order to find new opportunities

Resilient communities

The term 'community' refers to the municipality as a whole, including the public, town council, and other stakeholders. Resilient communities are able to cope with and adapt to change and sudden disturbances. They actively work to create desirable outcomes by influencing and preparing for economic, social, and environmental change.

A strategy for community planning

The resilience approach requires proactive thinking and constantly adapting based on experience. The ability to assess local resilience allows communities to identify and understand assets, weaknesses, and options for action from a different point of view. Members of a rural British Columbia town that underwent a resilience assessment point out advantages of gaining this fresh perspective:

This [assessment] framed things differently for us... the questions that were asked and the way the data was presented triggered discussion that did not happen before. It showed us we could have stronger communities by addressing the characteristics of resilience and taking a more holistic approach to community economic development (CCE 2000:11).

A **resilience assessment (RA)** is essentially a check-up on how well a community nurtures its ability to cope with and adapt to stress and unexpected change. The RA creates a snapshot of the community's current situation and highlights interventions to help protect and boost resilience to shape a prosperous and sustainable future.

ii. Five core principles of the resilience approach

Understanding five core principles that underlie the resilience approach is essential to grasp the HRA results in a meaningful way¹.

- 1) *Society depends on a healthy environment* - Social systems where people live and work are linked with and dependent on ecological systems. This is why a community is called a **social-ecological system (SES)**. The environment, economy, and society are so interwoven that change in one area impacts the other areas.
- 2) *Multiple-scales perspective* - A community is influenced by what happens at higher scales (e.g. the region, province, nation, international) and smaller scales, such as its own inner systems (e.g. community organizations, businesses, leadership, etc). Renewal or downturn at one scale can impact what happens at other scales, which is called the **feedback effect**. This effect can encourage or block change from spreading across scales.

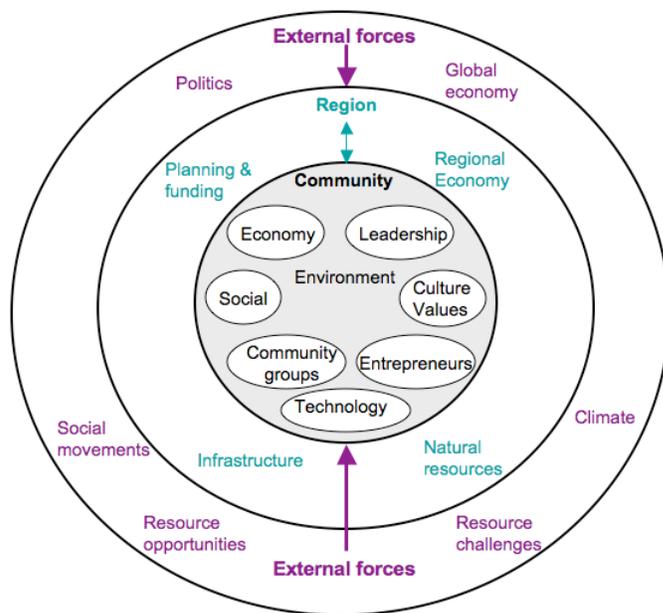


Figure 1 - Connections between larger scales and smaller scales within the community. Different sectors in a community constantly influence each other.

- 3) *Change and uncertainty are constant* - Trying to maintain current conditions or return to past conditions of yester-year can increase vulnerability and the severity of threats.
- 4) *Adaptive cycle* - A **SES** (defined in point 1 above) passes through four phases of the **adaptive cycle** as it changes over time, as illustrated by Figure 2.

¹ This introduction to the resilience approach was derived from the following key references: McLaughlin 2010, Francis 2010, Resilience Alliance 2007, Walker and Salt 2006, CCE 2000. Figures created by the author.

<p style="text-align: center;">GROWTH</p> <ul style="list-style-type: none"> ○ Lots of flexibility and creativity ○ Many people can access resources ○ Take advantage of opportunities ○ Build up resources to keep fueling growth ○ Things can change quickly! 	<p style="text-align: center;">MAINTENANCE</p> <ul style="list-style-type: none"> ○ Flexibility and creativity seem less encouraged ○ Resources get "locked up" by fewer people ○ The system seems more rigid ○ Things change slowly...
<p style="text-align: center;">RENEWAL</p> <ul style="list-style-type: none"> ○ Creativity and new ideas are encouraged ○ Competition over freed up resources ○ Momentum and commitment to the new plan builds up ○ Potential for something new to take shape or rebuild the old system 	<p style="text-align: center;">RELEASE</p> <ul style="list-style-type: none"> ○ Sudden disturbance causes rapid change ○ Resources are suddenly available ○ New opportunities begin to appear ○ Need create a new plan ○ There is confusion and the future is uncertain...

Figure 2 - Four phases of the adaptive cycle

A system can move back and forth between different phases of the adaptive cycle. The cycle of change naturally observed in a forest helps explain the adaptive cycle:

In the release phase, a fire triggers quick release of the forest's resources, like nutrients and space for plants to grow. During renewal, there is a flurry of competition as different trees compete for space and nutrients. In the growth phase, a variety of tree species secure resources and room to grow (others are not so lucky). Maintenance phase - a few types of trees grow and lock up more and more resources, e.g. a white pine forest that blocks sunlight from reaching other plants below. The longer the forest stays in the maintenance phase the more rigid and vulnerable it becomes to disturbances (e.g. fire, drought or pests) that could start the cycle anew.

Allowing renewal: A system allowed to experience release and renewal is generally more adaptable and able to support the key functions its inhabitants depend on. If the system is held rigidly in the maintenance phase, resilience declines and disturbance can cause severe damage.

- 5) *Alternate states and thresholds* - Managing resilience is challenging because social-ecological systems are complex, difficult to control, and unpredictable. Too much change can push a system across a tipping point or **threshold** into an **alternate state** that supports a different set of conditions that influence human wellbeing and the health of the environment. Undesirable results can be very difficult or impossible to reverse.

In Figure 3 (below) each alternate state is like a valley surrounded by steep slopes. Shifting a community out of its current state (valley #1) into an alternate state (valley #2) requires momentum and direction to overcome the slope and cross the threshold. This is not straightforward because the topography changes (e.g. valley depth, distance to the threshold), thresholds are hard to see ahead of time, and the conditions in a new state are hard to predict.

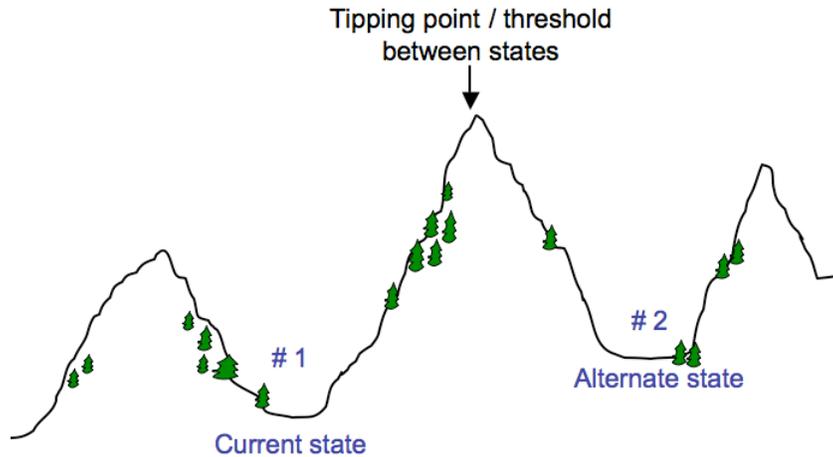


Figure 3 - Alternate states and thresholds in social-ecological systems (explanation above)

Encouraging a transition into a new state requires eroding qualities that entrench the status quo and strengthening sources of positive community resilience (e.g. creativity, cooperation). A resilient state has steeper slopes that help protect the community from being pushed into a different state. This can be helpful or frustrating depending on community goals & circumstances.

Conclusion: With these five principles in mind, there are many different ways to increase resilience and advance sustainability at the local level (e.g. Chapin et al. 2009, Gibson et al. 2005). Strategies must be tailored to each individual community. The **resilience assessment (RA)** provides a framework to examine community resilience and highlights priority actions to shape a desirable future.

iii. Five steps of the resilience assessment

The resilience assessment is divided into five steps outlined in Figure 4 (next page). Boiling down results within each step is a back-and-forth process. Understanding gained from one step can deepen understanding or question the conclusions of other steps.

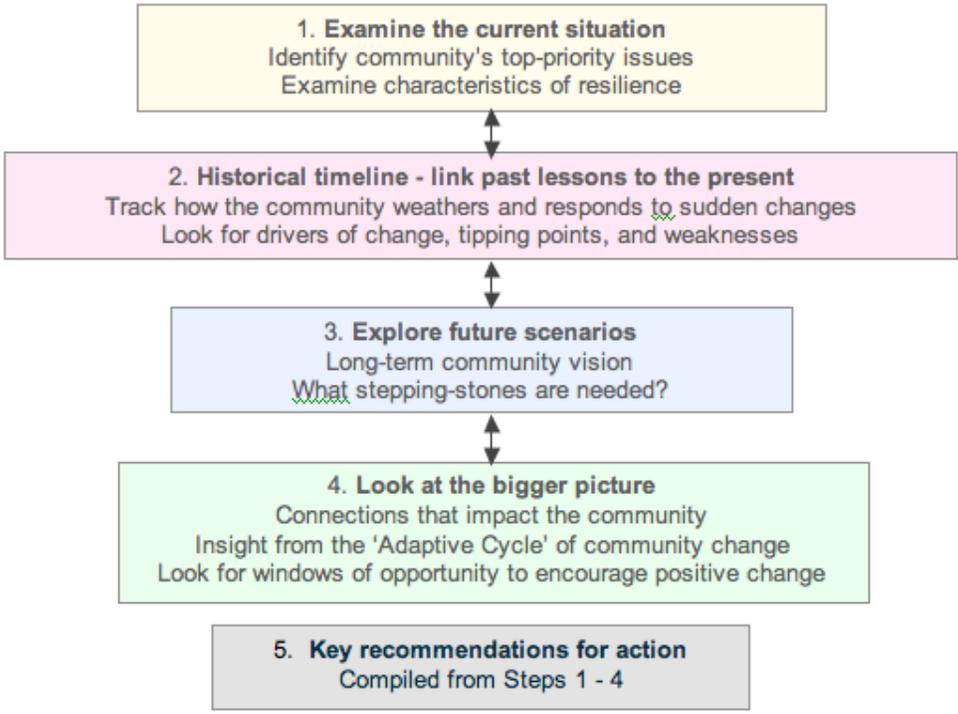


Figure 4 - Five steps of the resilience assessment process

Step 1. Examine the current situation: Information was collected from government statistics, community reports, and from community stakeholders in order to:

- Select three high-priority community issues to focus the RA
- Examine six key sources of community resilience

Step 2. Historical timeline - link past lessons to the present: The timeline was constructed, using literature review and community input, to examine how the community responds to significant challenges. The logic is that what happened in the past could happen again. Learning from past lessons allows a community to:

- Watch for warning signs and adapt quickly
- Identify recurring disturbances and vulnerabilities
- Understand underlying drivers of change in the community

Step 3. Explore future scenarios: Community stakeholders constructed future scenarios to illustrate key issues of concern as Huntsville strives to be sustainable and accommodate growth over the next 25 years. Two popular scenarios were analyzed in order to highlight:

- A potential 25-year community vision of Huntsville
- Thresholds of concern, potential threats, and underlying assumptions
- Management options expected to lead in desirable or undesirable directions

Step 4. Look at the bigger picture: Input from community stakeholders and literature review were used to perform three tasks:

- Understand Huntsville’s current location in the adaptive cycle
- Identify connections within and outside the community that strongly impact Huntsville
- Explore strategic opportunities and limitations for management based on the adaptive cycle

Step 5. Key recommendations for action: Recommendations for acting on the resilience assessment are compiled from community input, my informed opinion as a researcher, and literature review. Indicators are suggested to help monitor whether Huntsville is headed in a desirable direction.

iv. Information-gathering methods used to complete the RA

A community-based process was used to complete the RA. Perspectives from a wide range of community stakeholders are needed to understand the economic, social, and environmental issues that impact resilience. **Community stakeholders** are people who live in or are connected to Huntsville, including: permanent or seasonal residents, businesses, groups / organizations, municipal staff and elected officials, Muskoka residents living outside Huntsville, and visitors.

Input was collected from community stakeholders using two methods (shown in Figure 5): a Think Tank exercise, which is a special type of group collaboration technique, and a community workshop. Document review added detail and deepened understanding throughout the RA.

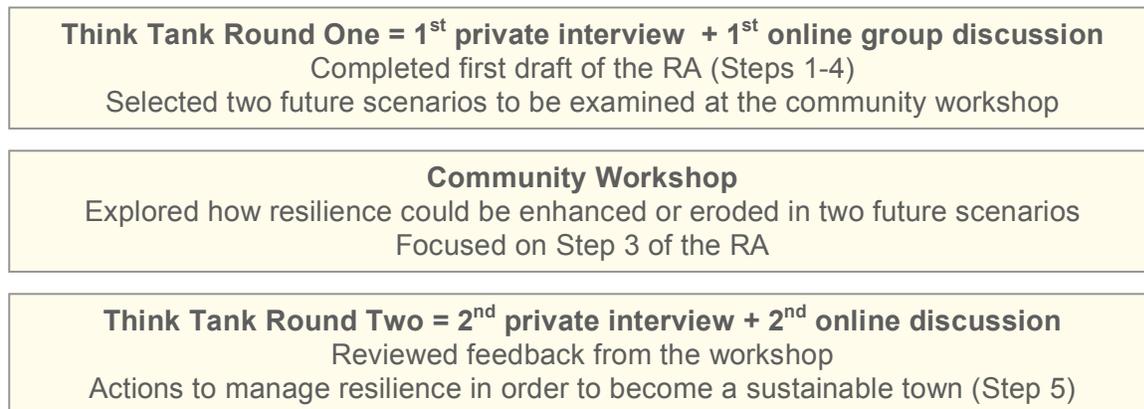


Figure 5 - Methods used to collect input from community stakeholders

(a) Think Tank exercise

Twenty-two community stakeholders participated in the Think Tank and completed RA Steps 1-4. Participant anonymity was used to encourage constructive dialogue within the diverse group (e.g. people with different levels of authority, formal and informal expertise, lay persons). Private interviews were combined with online group discussions that allowed participants to:

- Visit a password-secured website at their convenience to answer discussion questions
- View a summary of information collected from the private interviews (identified only by ID#)
- Anonymously converse with each other to critique or expand on ideas (discussion was moderated) - pictures of the visual layout of the websites are provided in Appendix 1

How participants were selected: Think Tank participants are information-rich people with a strong understanding of certain community sectors (social, economy, environment). The 2010 Town Council and Unity Plan Working Group suggested initial participants, who then suggested additional participants and so on. This process continued until information from participants overlapped substantially with existing knowledge. Time restraint limited how long I could search for participants.

Commitment to the project: The Think Tank exercise occurred from July - November 2010. Each participant dedicated at least 5 hours to the project in total. As a small reward, a \$125 gift certificate was raffled off at the end of the project.

Commitment to the project was excellent! Of the 22 people that completed the first interview:

- 20 people took part in the final online discussion
- 21 people completed the second interview
- 20 took part in the first online discussion

(b) Community workshop

The workshop allowed a new group of community stakeholders to complete RA step 3. Workshop participants analyzed the resilience of two scenarios that depicted Huntsville in 25 years. An invitation to the event was circulated and the forty available seats were quickly filled. The event was held Wednesday September 15, 2010, at Huntsville's UWaterloo Summit Centre from 7-9pm. Light refreshments, snacks, and seating were available for all in attendance. A \$25 gift certificate to a local restaurant was raffled off after the workshop.

How it worked:

- After an introduction to the RA process, participants chose one scenario to examine and joined one of the five focus groups (there were 6 to 13 participants per group)
- Seven community volunteers, one UWaterloo volunteer, and myself were focus group moderators or note-takers
- Participants shared their thoughts about the scenario and identified actions that could reduce or enhance resilience. Participants and community volunteers wrote their responses on a survey to ensure all points were 'heard' even if people didn't feel like verbally sharing
- A 'discussion summary' was created by each group and shared with the workshop audience

(c) Document review

Document review included: the Huntsville Unity Plan, municipal and regional planning reports, Town Council and committee meeting minutes, consultant reports (e.g. development assessments), reports from citizen action groups and non-profit organizations, historical information (e.g. books, websites), government statistics, newspaper articles, and published articles by academics and professionals.

v. Who participated in the HRA?

Overall, 68 people took part in the HRA and more were eager to join if more time and resources had been available. The summaries below give a sense of the range of people brought together to complete the HRA (complete details in Appendix 1). The names of participants are not revealed since research on collaboration techniques suggests that anonymity encourages people to share their opinions and think creatively (Linstone and Turoff 2002). Without this protection, honest dialogue can be stifled. Anonymity does not guarantee excellent collaboration, but it helps 'level the playing field' and encourages candid discussion. This approach could be changed in future versions of the RA.

Think Tank participants:

Total: 22 participants = 13 men, 9 women

- Huntsville residents: 18 permanent and 1 seasonal
- Muskoka residents outside Huntsville: 2 permanent and 1 seasonal

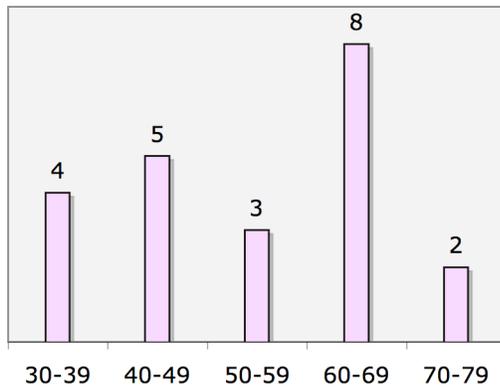
Primary interest: 46% selected a mixture of economic, social, and environmental concerns

Occupation: most work in public or private sectors (others = retired, religious, charitable)

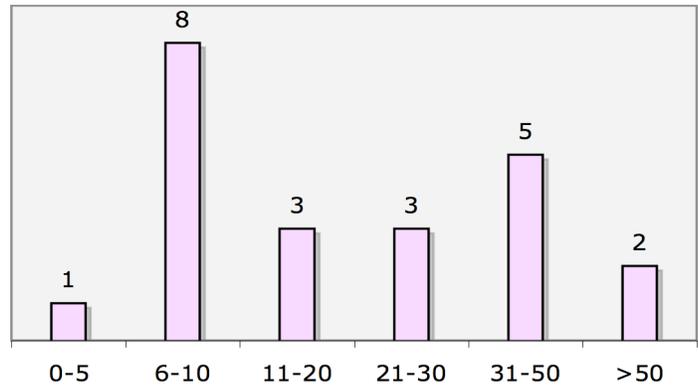
Education: 82% have at least one degree from a college or university

Age: ranged from 30-80 years with 45% of the group aged 60 or older

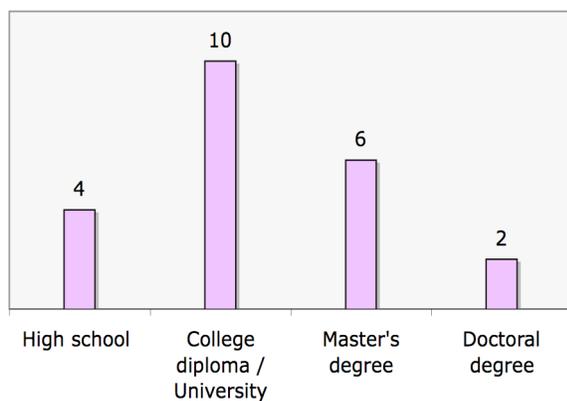
Age (years)



Duration as Muskoka community member (yrs)



Highest earned degree of education



Primary interest (social, environment, economy)

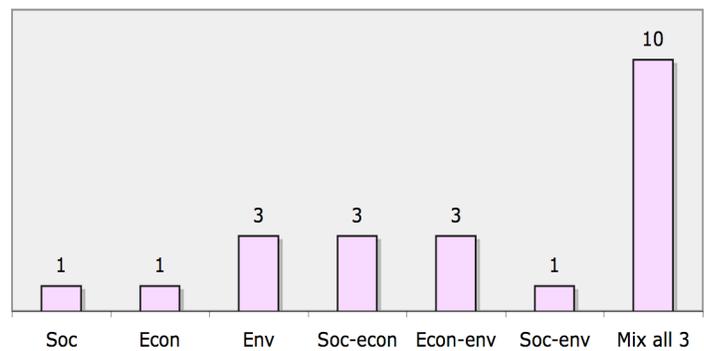


Figure 6 - Key demographic characteristics of Think Tank participants

Community workshop participants:

Total: 47 attendees (7 community volunteers + 40 participants) = 30 men, 17 women

- All are permanent residents of Huntsville

Occupation: most work in public or private sectors (others = retired, religious, charitable)

Education: 70% have at least one degree from a college or university

Age: ranged from 30-89 years with 68% of the group aged 50-69

Primary interest: 21 people did not respond and those who did often picked a mixture:

- 19 people included environmental concerns
- 14 people included economic concerns
- 14 people included social concerns

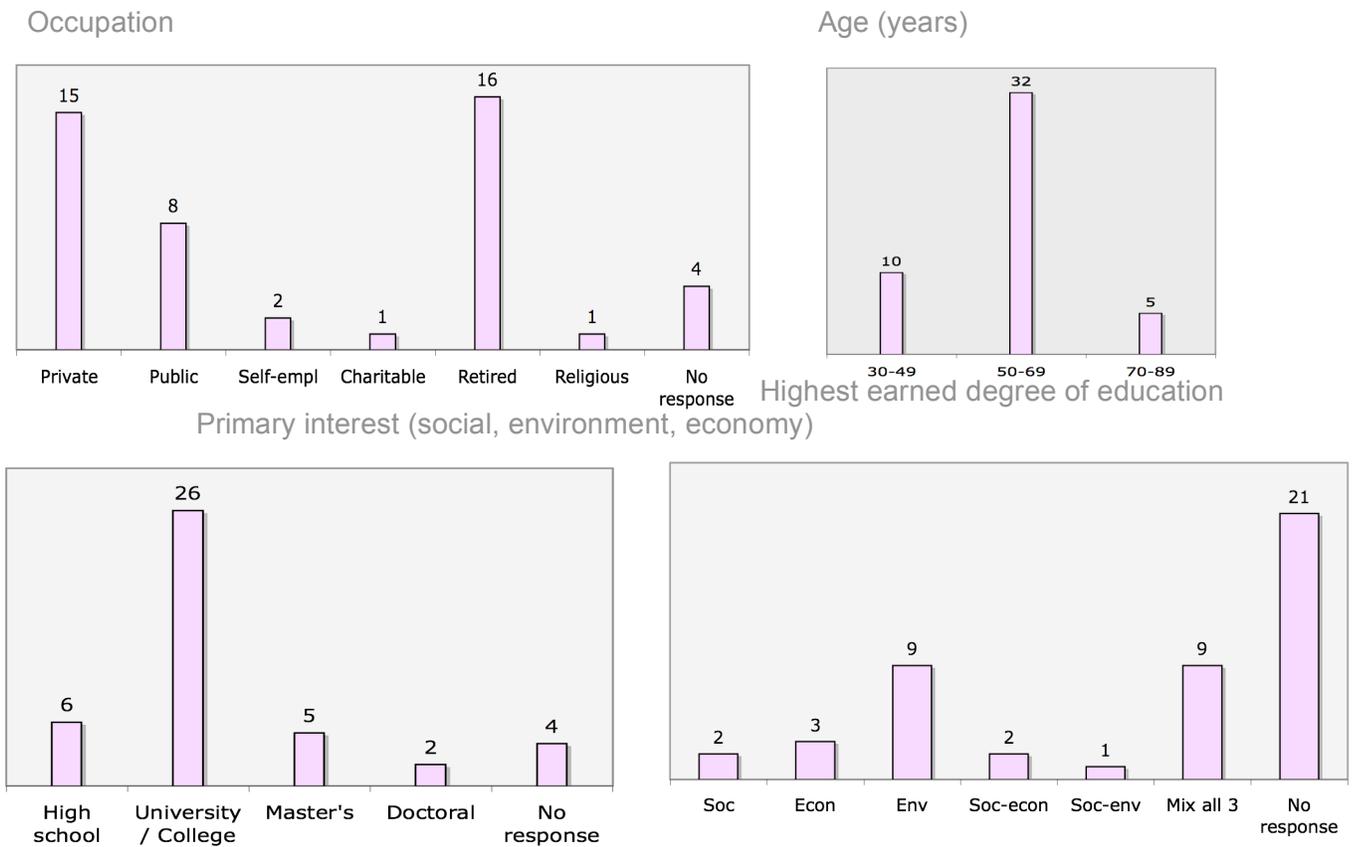


Figure 7 - Key demographic characteristics of workshop participants

Important observations: No participants under age 30 took part in the HRA, which represents an important demographic missing from this report. Also, in future versions of the RA, information should be collected about participants' income to ensure voices are heard from people in different socio-economic groups. The purpose of the Think Tank and workshop was not to represent the entire community but to collect in-depth local knowledge from a diversity of perspectives. In the future, representative community participation could be sought.

v. Presenting the results of the Huntsville Resilience Assessment

The HRA report was drawn together based on the results of the Think Tank exercise, community workshop, document review, and my observations as a researcher. Before diving into the results of the HRA, please review the following four announcements:

- 1. Condensing information** - A great deal of information had to be condensed to create this report. The assessment focused on a limited set of high priority issues in order to provide targeted recommendations to help strengthen resilience and facilitate positive change as Huntsville strives to become a sustainable town.
- 2. Quoting participants** - Not all the information I collected could possibly fit within this report. Direct quotations were used from all Think Tank participants (some quotes were shortened as is noted). Workshop attendees can rest assured that I read all surveys, which provided a great deal of valuable information. All quotations are denoted in *italic* font. It is my hope that

this report communicates the wealth of knowledge, opinions, and ideas contributed by the community.

3. **Connecting the HRA to the Unity Plan-** Focus is placed on how the results of the HRA could impact Huntsville's Unity Plan, which is briefly introduced in Chapter 1. The complete Unity Plan report can be downloaded from the Town's website:
http://www.huntsville.ca/en/townhall/resources/unityplan_finaldraft.pdf
4. **How the results are organized** - The HRA is presented in five chapters according to the five-step process outlined earlier (Figure 4). The beginning of each chapter summarizes what the step entails and how information was collected. Results are a mixture of knowledge and ideas contributed by community participants, literature review, and my observations as a researcher.

Chapter One

Examining the current situation

Chapter Summary: This chapter paints a picture of Huntsville’s current situation using several different perspectives (e.g. economic, social, environmental, political). Three high priority issues are selected based on community input to focus the RA. Six characteristics of community resilience are used to explore key factors relevant to the main issues. Information to complete this step came from the first round of the Think Tank exercise and literature review.

1.1 Viewing Huntsville as a social-ecological system

This section sets the stage for the rest of the RA by depicting Huntsville as a **social-ecological system (SES)** that relies on connections between small and larger scales. Huntsville depends on numerous important connections summarized in Table 1 (remember SES was explained on p.6).

Table 1 - Larger systems and sub-systems of the Huntsville social-ecological system

Domain	Scale	Important connections that influence Huntsville
Social	Larger	Provincial and federal government
	Large	Population growth in the Greater Toronto Area and migration to Muskoka Region
	Huntsville SES	Population growth, development & settlement patterns, available services and support, demographics
	Small	Town Council, Unity Plan implementation teams
	Smaller	Community organizations, businesses, and individuals
Economic	Larger	State of the economy in Ontario and Canadian, connections to the global economy
	Large	Regional economy and trends, tourism relies on visitors from the GTA, U.S. and international
	Huntsville SES	Local economic base
	Small	Corporate businesses organizations
	Smaller	Proprietorships and entrepreneurialism
Environment	Larger	Global ecological systems, climate, circulation of air, water, pollution, etc.
	Large	Lake Muskoka Watershed, Great Lakes-St. Lawrence Forest Region, migration routes of birds & animals
	Huntsville SES	Forest, wetland, lake and river ecosystems, etc
	Small	Watersheds and specific habitat types
	Smaller	Patches of wildlife habitat

1.2 Issues of concern and community goals

For the RA to be effective, it must focus on a limited set of issues. This section identifies community goals, issues of concern, and selects three main issues based on community input to serve as the focus the RA.

Sustainability planning

In 2009, the Town received funding from the Federation of Canadian Municipalities to develop a long-term sustainability plan to help balance economic, social, and environmental needs. The **Unity Plan (UP)**, released in September 2010, was based on input from the community, municipal staff, Town Council, the Town's Environment Committee, UP working group, adjacent municipalities, the District of Muskoka, and government organizations (Town 2010). The Town hopes the plan will improve the local economy and local quality of life by helping attract green industry, knowledge- and service-based businesses (The Forester 2009).

Project history: Decline of primary resource and manufacturing industries has left Huntsville largely dependent on tourism (LTAB 2008). Areas requiring concerted improvement have been identified for the economy (LTAB 2008, Muskoka Futures 2003), environment (MWC 2008, 2010a), society (e.g. People for Inclusive Communities 2010), and issues that crosscut all three sectors (CIEL 2008, Climate Action 2008). Recent municipal initiatives include the 2008 Community Master Plan, which provides a framework to guide municipal initiatives based on input from the Council and community.

How the UP works: The UP was intended to serve as an 'umbrella plan' that influences all other municipal plans, programs and decisions. This means that all other plans should be consistent with the Unity Plan (Figure 8). The UP provides a mechanism for community organizations and individuals to influence decisions made for their community and participate in implementing actions outlined in the plan (Town 2010:4).



Figure 8 - Unity Plan influences all other plans, policies and initiatives (source: Town 2010:4)

Huntsville's Unity Plan Sustainability Vision:

Huntsville is a vibrant, welcoming and healthy place in which to live and play as we foster innovation, celebrate arts, culture, heritage, and recreation, develop a strong and resilient economy and follow an ethic of social caring and environmental stewardship (Town 2010:1).

Sustainability principles and community values to support this vision (Town 2010):

- Foster participation and work toward a common sustainable future
- Promote a good quality of life for everyone in the community
- Balance the needs of residents, businesses, visitors, and attract youth
- Achieve a strong and resilient economy and thriving social environment
- Build on Huntsville’s strengths, including cultural values, history, natural and economic systems
- Protect and restore biodiversity and natural ecosystems
- Acknowledge limits to growth and development and need for climate change adaptation
- Continue to focus on accessibility and education
- Retain a small rural town feel

Implementing the UP: Twelve goals were identified as the focus of the UP along with strategies, actions, and potential indicators of progress. Community Implementation Teams (CITs) began to be established in early 2011 to address clusters of the 12 goals listed below (Town 2011a):

1. Environment and natural heritage
2. Transportation and land use planning
3. Arts, culture, social well-being, and affordable housing
4. Economic development
5. Municipal operations
6. Recreation, public health, active living, and education

A “UP Implementation Committee” was created that consists of two elected officials and six chair- persons from the CITs (community members) (Town 2011a). This committee provides recommendations to council for approval. The UP report suggested each CIT include a mixture of Town staff, community partners, and organizations to identify and implement priority actions. It was also suggested that a senior town staff member provide advice to the CITs (Town 2010).

The Unity Plan is intended to be a ‘living document’ that is continually improved through ongoing monitoring of the plan’s performance, community needs, and through good governance. A review and revision of the UP was recommended every third year of the Term of Council (Town 2010).

1.2.1 Three main issues focus the resilience assessment

Becoming a sustainable town is Huntsville’s overarching goal but finer focus is required for the RA. The Think Tank was asked to identify top-priority problems that need to be addressed for Huntsville to become a sustainable town. Their responses revealed 18 topics that included economic, social, and environmental concerns. Table 2 (next page) presents the top-three issues mentioned by the largest number of participants. The high importance of these issues was reinforced during the online discussion, community workshop, and in the Unity Plan.

Table 2 - Three high priority community issues that serve as the focus of the RA

<p>Main Issue 1. Grow the creative economy to provide more year-round well paid jobs</p> <ul style="list-style-type: none"> Attract and support industries in the fields of information, knowledge, technology, environmental research, and creative businesses (e.g. innovation, Arts, culture, design) Job creation must provide a good quality of life that retains and attracts youth and young families Enable entrepreneurs, create jobs of tomorrow, and reduce vulnerability to economic downturn
<p>Main Issue 2. Land-use planning to protect the environment</p> <ul style="list-style-type: none"> Maintain and enhance the beautiful environment, which quality of life and the economy depend on Enforce environmental regulations and shape development rather than letting it get out of control All planning proposals should pass through a filter that considers impacts on the environment The natural environment is a high priority - management should <u>at the very least</u> equally balance the environment with social and economic concerns
<p>Main Issue 3. Municipal leadership committed to sustainability and community engagement</p> <ul style="list-style-type: none"> Strong commitment to sustainability that helps improve community awareness and attitude about sustainability (e.g. accepting positive changes, getting involved, changing behaviour) Inclusive community engagement and collaboration in decision-making where the community is an important partner rather than just an audience Leadership is transparent and accountable

1.2.2 Summary of Huntsville’s social-ecological system

This summary of Huntsville’s social-ecological system focuses on the environment, population growth, economy, and governance. Key players and challenges are highlighted that are relevant to the three Main Issues selected to focus the RA (Table 2)

Environment

Muskoka’s regional environment (District of Muskoka 2004):

- The entire municipality of Huntsville lies within the Lake Muskoka watershed
- 94% of the watershed is in natural cover (e.g. forested) and most wetlands are intact
- Water quality is better than provincial guidelines for recreational use
- Some areas show early signs of degradation and local stewardship programs are needed
- Economy is closely tied to the environment for tourism and to attract new residents and economic opportunities

Land resources: Huntsville is located on the edge of the Canadian Shield characterized by rocky outcroppings and generally thin and nutrient poor soil laid atop bedrock. The forests typical of the

The Muskoka Watershed Council monitors indicators of ecosystem health. The Huntsville Lakes subwatershed, which encompasses a large part of the Town of Huntsville, was tested in 2010:

Land ecosystem indicators

- A grade - natural cover
- B grade - large natural areas
- C grade - interior forest
- D grade - natural shorelines
- F grade - protected areas

Water ecosystem indicators

- B grade - phosphorous levels
- B grade - natural shoreline
- A grade - low mercury in fish

Muskoka Watershed Council 2010a 2010b

Huntsville area are a mixture of conifer and hardwood trees (e.g. white pine, spruce, tamarack, hemlock, maple, birch, and oak) (District of Muskoka 2004). Large undisturbed natural areas help purify the air, maintain good water quality, provide a carbon sink, and support a diversity of plants and animals (MWC 2010b).

Water resources: Huntsville is dotted with lakes, wetlands, and rivers. The water that flows through Huntsville originates in Algonquin Park and travels southwest into Lake Muskoka before it continues on its journey and empties into Georgian Bay through the Moon and Musquash Rivers. A variety of subwatersheds lie within Huntsville's borders, including Huntsville Lakes, Big East River, Lake Waseosa, Skeleton Lake, Three Mile Lake, North Branch Muskoka River, and Lake of Bays (District of Muskoka 2004).

Population growth

The Town's current (2011) permanent population of ~20,000 is expected to grow:

- By 2031, Muskoka's permanent population is expected to grow by approximately 22,500 people and the seasonal population by approximately 14,300 people
- Huntsville will attract a large portion of this growth
- Population growth in the Greater Golden Horseshoe will drive housing demand in Muskoka and development pressure (District of Muskoka 2011)

Tools used to direct growth (Town 2011b):

- Official Plan (2008) - guides future development and environmental preservation
- Zoning By-Law - specifies permitted uses, regulations, and requirements for developing property, including setbacks for buildings, building height, and setbacks from the water (etc)
- Unity Plan (2010) & Community Master Plan (2008) - provide information regarding future development within the town

Economy

Huntsville's primary urban area serves as a commercial and business centre for the northern part of Muskoka and adjoining areas in the District of Parry Sound and Haliburton County. Huntsville is also a destination or travel stop for hundreds of thousands of tourists / visitors every year (MGP 2001).

Town Council is focused on diversifying the local economy, which relies largely on tourism and service industries. Specific drive is placed on growing event tourism (sporting events and conventions), environmental research, & related businesses.

Regional economic trends (Muskoka 2011):

- Decline in manufacturing and primary industries (i.e. agriculture, forestry, aggregates) projected to continue, whereas tourism, construction, retail, service, real estate, and public sectors expected to grow

Muskoka Region economy key facts:

- **Top employment sectors** - accommodation, food services, retail, wholesale, and manufacturing
- **Tourism** - 57% of Muskoka's economic base is tied to meeting the needs of tourists or seasonal residents and many occupations in sales and services are directly or indirectly related to tourism
- **Underemployment** - Muskoka has one of the highest rates of employment in Northern Ontario, but many jobs are seasonal or part time
- **Average household income** - Muskoka is 21% below the provincial average

District of Muskoka 2011

- As the permanent population grows, the demand for local services increases, which increases demand for part time and lower wage employees as well as seasonal employees (particularly in construction and hospitality industries)

Governance

- Federal government of Canada - Parry Sound-Muskoka Member of Parliament (MP)
- Provincial government of Ontario - Member of Provincial Parliament (MPP)
- Two tiers of municipal government:
 - Muskoka Region Council - elected officials
 - Huntsville Town Council - elected officials
 In addition: boards, committees, and other groups bring together elected officials, town staff, and community members. The CAO leads municipal staff and civic services.

Town Council governance:

As summarized by a participant: “Elected officials are selected by majority rules based on their ideas and visions. Councillors discuss each initiative and make a decision based on their values, education and experiences. The mayor is not entitled to vote unless the councillors’ votes create a tie. A council where every elected official agrees on all aspects that arise causes concern. For healthy and effective governance, councilors must bring a wealth of knowledge and capacity to inquire on different topics.”

Civil society organizations can be powerful lobbying forces depending on community issues that arise. Huntsville has:

- 10 service groups
- 7 seniors clubs
- 19 Arts and culture groups
- 36 sports groups
- 38 miscellaneous groups (e.g. youth, social assistance, employment, recreation, environmental stewardship, family services, etc)
- Active landowner and lake associations

2011 Huntsville Community Directory

Key sources of funding / investment:

- Federal (e.g. FedNor, Federation of Canadian Municipalities)
- Provincial (e.g. Rural Economic Development program)
- District (e.g. infrastructure, service improvements, funding)
- Municipal (e.g. infrastructure, service improvements, funding)
- Not-for-profit organizations contribute to social and economic development in Huntsville, e.g. Muskoka Futures and the local Chamber of Commerce

How the Unity Plan addresses the three Main Issues:

Main Issue 1 (Economic Growth)

Unity Plan Goal #11 Economic Development: “Huntsville will promote a diverse and prosperous economy by attracting innovation, growing a knowledge-based economy, providing adequate training, developing green jobs, and offering sustainable year round employment to retain Huntsville’s youth.”

Existing practices, initiatives, and policies already completed or underway (Town 2010:34):

- Attracting world class events including the G8 conference and research facilities, like UWaterloo
- Town’s 2002 Strategic Economic Development Plan
- Creating a niche shopping experience downtown
- Improving IT services
- Tourism promotion

Several strategies are particularly relevant to growing the creative economy:

- Attract green industries and businesses - e.g. develop a list of businesses to attract / foster, targeted marketing strategies, consider incentives, streamlined process for start-up companies.
- Encourage knowledge-based economy - e.g. invest in education to develop skills and required expertise, support a business start-up centre for entrepreneurs
- Develop an environmental research centre of excellence - e.g. explore opportunities for medical research, student research on best practices, higher education institutions

Main Issue 2 (Land-use planning that protects the environment)

Unity Plan Goal #1 Environmental Protection: “The community will protect, preserve, restore, and enhance the terrestrial and aquatic environments and biodiversity of Huntsville and surrounding area by being responsible stewards of the environment.”

Existing practices and policies already underway (Town 2010:7-8):

- Environmental monitoring by government agencies, volunteers and NGOs
- Official Plan policies and by-laws that specify commitment to environmental protection
- Parkland dedication and the Town’s Parks Master Plan
- ‘Muskoka Water Strategy’ for protecting water resources
- Muskoka Watershed Council and environmental stewardship

Ten ‘strategic directions’ are outlined that focus on protecting: green spaces from development to provide natural connections and prevent habitat fragmentation, endangered and threatened species, water and air quality. In addition, becoming a ‘toxic free’ community, reducing noise pollution, and preventing invasive species are also recommended.

Suggested actions include: monitoring and data collection, voluntary stewardship, community education, policy creation / alignment, and development of a natural heritage strategy (etc).

Unity Plan Goal #5 Land Use Planning: “Huntsville will become a model of sustainable community development, by incorporating the principles of smart growth, sustainable design and green buildings into all land use planning decisions. This will include a commitment to the protection and maintenance of Huntsville’s rural small town character and vibrant downtown.”

Existing practices and policies already underway (Town 2010:20):

- Ontario’s Provincial Policy Statement promotes creation of ‘Complete Communities’ (e.g. higher self-sufficiency, maximize walking and biking, public transit, etc)
- Town’s 2002 Strategic Economic Development Plan and Official Plan encourage development of downtown and urban areas
- Promoting ‘smart growth’ objectives (e.g. compact community design, reduce urban sprawl))

Five ‘strategic directions’ are outlined to address land-use planning:

- Meet smart growth objectives
- Official Plan conforms to UP
- Develop sustainable neighbourhoods
- Protect productive farmland
- Land-use planning that positively impacts health, the environment, and quality of life

Suggested actions include: forming a land-use advisory committee, promoting sustainable land use planning practices, advocating for use of best practices, and demonstration projects (etc).

Main Issue 3 (Leadership committed to sustainability and community engagement in decision-making)

The section of the UP report on community collaboration and engagement recommends:

- Community collaboration, engagement and outreach are crucial for implementing the UP
- Develop a communication strategy and mandate (to seek community participation and buy-in) that ensures consistent communication between council, staff, residents, the District, and other towns
- Maintain an updated list of interested stakeholders and community members used to measure community involvement and distribute communication materials
- A Sustainability Director or Coordinator identify people / organizations directly affected by UP implementation and those that could improve success of the UP
- Host an annual community event to celebrate success

Unity Plan Goal #2 Municipal Operations and Infrastructure: “The Town of Huntsville will strive to be a model sustainable community, by reducing its impact on the environment, and planning for climate change adaptation by following best management practices in all municipal operations and infrastructure projects and by leading by example.”

Existing practices and policies already underway include various completed and ongoing initiatives / policies regarding sustainable municipal infrastructure and services, for example:

- Official Plan encourages green building design and renewable energy
- The Town performs energy audits on existing municipal buildings
- Huntsville’s UWaterloo building is an example of green building design

Strategies particularly relevant to Main Issue 3 include:

- **Transparent governance structures and strong municipal leadership** - e.g. representing best practices in sustainability, being a model for other communities, and keeping residents up-to-date regarding actions, need for volunteers and input on direction of the plan
- **Developing local sustainability standards for the Town** - e.g. creating municipal incentives to encourage environmental behaviours and community education

1.3 Examining six community resilience characteristics

Six community **resilience characteristics (RC)** were examined to create a portrait of Huntsville’s current situation. Characteristics were selected that target general community resilience, the three Main Issues, and have proven to be highly predictive in assessing resilience. The characteristics are not exhaustive - different characteristics could be considered for exploration in the future.

The resilience characteristics are:

- RC1. Valuing natural resources and ecosystem services
- RC2. Community cohesion (effective cooperation and treating others fairly)
- RC3. Continually seeking to improve and learn from experience
- RC4. Supporting innovation
- RC5. Community engagement in decision-making
- RC6. Overall community resilience

The Think Tank and document review provided information to examine the RCs. Think Tank participants shared their thoughts on each characteristic and recommended action strategies to address the three Main Issues. Key points are summarized below for each characteristic.

RC1. *Valuing natural resources and ecosystem services*

All Think Tank participants agreed the natural environment plays an important role in keeping Huntsville healthy and prosperous. Some felt the environment is doing pretty well but many voiced their concern that more protection is needed.

Most important natural resources that Huntsville depends on:

- Clean air and water
 - Forests, lakes, wetlands and the services they provide (e.g. wildlife habitat, purifying water, removing air pollution, helping to mitigate climate change)
 - Natural beauty and relaxation
 - The role the environment plays in maintaining good personal health
 - Recreation, sports, and other outdoor pastimes
 - Tourism attracted to the natural environment
 - Renewable energy (e.g. solar and wind power)
 - Primary resource industries like forestry and quarries (rock / gravel extraction)
 - Education opportunities for students and environmental research
 - Spirituality and inspiration
 - Heritage and history
 - Small-scale farming
- *When you bring people outside they're happier and healthier, I think we all need to see beauty, it fills a special part in us.*
- *All sorts of activities are available here that you can't do down in the Golden Horseshoe. How do we get more of those people up here? Keeping our natural areas clean, calm, and safe is very important. We need to reduce pollution and protect the environment and tourism.*
- *Unfettered shorelines, clean air and water, and texture of the landscape are very important. We take it for granted. When change happens it's incremental and you don't notice what you're missing until you see before and after pictures.*
- *Water, natural beauty, wildlife, and clean air aren't respected as they should be. [The environment] is why we are here!*

RC2. *Community cohesion*

Community cohesion refers to the spirit of cooperation that helps a community pull together to respond to stress, surprise or make positive changes. Two building blocks of community cohesion were explored by the Think Tank: ability to work towards a common goal and treating others fairly.

i. Working effectively towards a common goal

Common threads: On average, participants felt that cooperation is between moderate and strong in Huntsville. Competition can be strong between Huntsville and other Muskoka communities. There is some division in the community where certain groups don't see eye to eye (e.g. longtime residents vs. newcomers). Different interest groups also have to compete for funding. The River Mill Park was a commonly used example to show that different groups can

work together effectively. The local government can be helpful or counterproductive when it comes to cooperation.

- *There is a great deal of cooperation in Huntsville and not a great deal of resistance. There's very healthy democratic discussion, people aren't afraid to speak their mind, and encouraged to do so.*
- *The community really rallies around a good project but it needs to fit the 'small town feel'. There is tension between the different groups in the community.*
- *It's hard to get cooperation when people don't get engaged. The community can be apathetic until a projects starts to be implemented...even when well notified ahead of time.*
- *This community doesn't cooperate - it challenges the leader all the way down the line. Nothing is ever easy until the final decision has been made. There's also some friction with newcomers in the community who haven't really been welcomed.*

ii. Treating others fairly

Common threads: Overall, participants felt that Huntsville does try to be fair to all people. Obvious priorities include accessibility and sport and art programs for youth. Three challenges are the lack of opportunities for youth to stay in town after high school, severe gap in income and quality of life between 'have' and 'have-not' people, and affordable housing. Natural disasters and the Empire Hotel fire were common examples used to showcase the community's caring and charitable response.

- *When the Empire Hotel burned down, people took in low-income families and looked after them - that only happens in a small, closely knit community that has compassion for those less fortunate.*
- *We need to avoid just looking for outcomes that directly benefit "me and my group" - new ideas need to be fairly considered. Overall, the local government does a good job listening to everyone's needs.*
- *I hear about affordable housing or other things for disadvantaged groups but I don't see a lot happening (e.g. the Empire Hotel has not been properly replaced). Housing is very expensive even for professionals living in town. We need to think about what 'respect' really means in terms of decent housing and standard of life.*
- *It's a social responsibility to look after our community. You cannot live in dignity working in the tourism industry - it's all minimum wage and seasonal work. We've still got a long way to go though - a lot of money was just spent on the University of Waterloo building and the second ice pad, which both serve the wealthy.*

RC3. Continually seeking to improve and learn from experience

Common threads: Some participants felt Huntsville's citizens demand improvement, others worried that complacency was an ongoing problem. Examples used to highlight Huntsville's commitment to learning & improvement include: the active Arts and sports groups, Chamber of Commerce, and the Town's use of G8 funding on a variety of projects (e.g. UWaterloo centre). The fact the downtown area remains vibrant, even with big box stores nearby, is another example of the local drive to keep improving. It was generally felt that Huntsville is better at seeking improvement than other Muskoka towns and leadership obviously has a big role to play.

- *We're always trying to improve. This is a restless community that's never satisfied and expects excellence. There are some groups that aren't engaged and just take care of themselves.*

- *It's an ongoing struggle to learn and actually change so that we don't repeat mistakes. Ultimately it comes down to our politicians.*
- *We're not doing so well at seeking improvement, there's a high degree of complacency. A small population is motivated and only a handful can actually push limits and make things happen.*
- *Sometimes there's a twisted side of things...people want improvement but not at their own expense.*

RC4. *Supporting innovation*

A sustainable and resilient community fosters creativity, innovative thinking, and supports new ideas to deal with challenges. It is vital to encourage constructive creativity and novel ways of thinking.

Common threads: On average, participants felt that support for innovation is moderate in Huntsville. Many people felt support for new ideas is only present if they fit the 'small town feel'. The G8 conference and UWaterloo campus were often highlighted as evidence the town supports innovation. Some identified specific groups in the community that typically want a lot or little change to occur (e.g. new residents vs. people born and raised in Huntsville). Participants felt Huntsville is far more aggressive for innovation and risk-taking than the other Muskoka towns.

Positive support

- *We're very fortunate that our town staff are supportive of bringing in and supporting new ideas. They have a real "let's make this happen" attitude and might provide some money to test out a new idea. People aren't stuck in their ways here, they think outside the box. This openness to trying new ideas rewards the community big-time.*
- *I am grateful for the newcomers who bring with them their experience, history and passion to create a more innovative Huntsville.*

Moderate support

- *We do seem to be a fairly progressive community. In my area of work, there's some desire to evolve and improve but it's restricted due to a lot of dependency on higher government policies. The government sets the direction on innovation and impacts what can and can't take off.*
- *It depends on the politics of the day, the current mayor has been very receptive to new ideas.*

Critical perspectives

- *I don't think we're excelling at innovation...just look at communities in British Columbia for comparison! We've talked a lot but not walked a lot. There's some risk taking but not a wellhead.*
- *There's ambition to do new things but there are lots of groups that oppose it. There are a lot of speed bumps along the way that can be really frustrating to efforts trying to benefit the community.*

RC5. Community engagement in decision-making

To strengthen resilience, one of the central roles of good leadership is to empower both the desire and ability of the public to participate in decision-making and take action in the community. This topic received mixed reviews from the Think Tank. Many participants mentioned that more community input should be sought and that transparent decision-making and public apathy are problems.

Positive support

- *There's a great deal of collaboration in the community and the leadership is very consultative and team-based. Open and accountable decision-making depends on the issue - the information is available people just need to be willing to look for it.*
- *There is a mixture of 'bottom up' leadership and 'top-down' leadership by decision-makers at the council level. Grassroots efforts driven by the community and the government generally work well together, but could work on building mutual respect and trust.*
- *The amount of community input over the past 5-7 years has been outstanding (e.g. Strategic Plan, Community Master Plan, Unity Plan, and more). Criticism of a lack of public input is either a reflection of a lack of effort or "I didn't get my way therefore the public input process was flawed".*
- *Open disagreement and debate at Council meetings signify that 'deals' aren't prearranged and those opposed to ideas can freely express themselves.*

Critical perspectives

- *The leadership style is very top-down. When people try to have their voices heard by the local government and are treated in a heavy-handed way it erodes respect. There's not much evidence the government is interested in public opinion or transparency. There has been some improvement... but you have to wonder whether public opinion has any effect.*
- *I don't think there's a lot of trust in the council, it's split right down the middle, though it has become less acrimonious recently. Leadership needs to be willing to stretch itself and push for a higher standard. The voices of the community are not heard very effectively.*
- *We have a strong community but there has been less input into public initiatives during the past four years including the Summit Centre and how the [2010] Town Council took the Unity Plan out of the hands of the Local Environment Advisory Forum.*
- *Many public consultations are merely a political exercise with the outcome already complete prior to the meeting...therefore fewer and fewer individuals participate in them. True leadership comes from community organizations that focus on bettering the world and get much better results than political parties (who often serve their own interests).*

RC6. Overall community resilience

A resilient community is able to bounce back from adversity and adapt to change. It also fosters creativity and innovation in order to breathe new energy into the town and challenge the 'status quo'.

Common threads: On average, participants thought that Huntsville is moderately resilient today. Many people mentioned the investments made possible by G8 funding and the economic and social improvements that are expected with the presence of UWaterloo. Huntsville's response to the last economic recession and the Empire Hotel fire were two commonly used examples of the town's ability to deal with and bounce back from hardship.

Positive support

- *Huntsville is beginning to be aware of people less fortunate and in so doing is making a step towards resilience. Old ways of thinking have started to change, such as accepting there are people in desperate need all around us.*
- *Huntsville is more resilient than any other community of its size in Ontario. In terms of adversity, I think people get prepared, are opportunistic, mitigate negative impacts, and recover quickly. But the prosperous economy hasn't necessarily resulted in social improvements...where response happens only during an emergency.*
- *Tourism and retirement are pretty stable markets especially with Toronto becoming a less desirable place to live and Huntsville looking more attractive. Efforts have been made to diversify and into new areas, like the information and knowledge economy, but more attention to manufacturing is needed to become truly resilient.*

Moderate support

- *A few years ago there was better balance between industry and tourism. Several industries have left town and the tourism jobs are seasonal and low paying. There's a lot of hope that the new University of Waterloo centre will bring more people and permanent jobs to the community.*
- *This community has to be resilient...we have to deal with the peaks and valleys of the tourism industry. We're constantly getting laid-off so we have to adapt and be resilient not despondent.*

Critical perspectives

- *Huntsville is not very resilient. We just lost a few big employers and it's tough for people to support themselves. A lot of folks don't have the support to bounce back from job loss. Most in this situation decided to leave.*
- *There's not much of a safety cushion if things do go wrong. We need long-term solutions, i.e. for affordable housing and protecting the environment. Our approach to development isn't very resilient. The realities of climate change and limits of development need to be accepted.*

Next step:

The rest of the RA builds on the findings presented in this chapter. Recommendations are gathered throughout chapters 1 - 4 to improve Huntsville's resilience and ability to foster sustainability.

Chapter Two

Historical timeline - linking past lessons to the present

Geographer and best-selling author Jared Diamond suggested that civilizations fail not just because they don't envision the future, but also because they may not recognize past changes
- Diamond 2005

Chapter Summary: This chapter presents a historical timeline that tracks how the community has responded and shifted due to significant changes. The logic is that what happened in the past could happen again. By carrying past lessons forward, the town is better able to watch for and respond to warning clues and cyclical problems. Information was gathered primarily through literature review and input from the Think Tank.

This step identifies:

- Recurring disturbances and vulnerabilities
- Underlying causes or drivers of change in the community
- Potential thresholds of concern
- How the community responds to change

2.1 Setting the stage - preparing the historical timeline

The historical timeline highlights major eras and **disturbances** that substantially changed Huntsville's economy, environment, or society. A disturbance can be a sudden unexpected event, like a flood, new technology, economic downturn, or it can be prolonged stress (e.g. slowly changing cultural values, growing population). The timeline is not meant to be exhaustive. A community is so intertwined with other systems that listing all possible disturbances and changes would not be practical. A great deal of information was sifted to showcase major changes and reveal vulnerabilities and underlying causes of disturbance.

Key sources used to create the timeline (for complete list refer to [References section](#)):

- Local history books (e.g. Rice 1964, Laycock 1974, Pryke 2000)
- Muskoka Heritage Foundation DVD "Life on the Edge" (2008)
- Reports and plans from Huntsville / Muskoka, community organizations, meeting minutes, government statistics, newspaper articles, published research articles

2.2 Summary of big picture changes leading up to the 21st century

To understand the gravity of local changes outlined in the timeline, we must first orient ourselves to bigger picture changes that occurred during the time period leading up to 2010.

Remarkable changes during the 18th and 19th centuries:

- **First industrial revolution (1700s-1850):** Major changes in agriculture, mining, transportation, and technology. Manual labour was enhanced or replaced by machines fueled by hydropower or fossil fuel power. Average income was greatly improved and human population grew quickly.
- **Canada's early years:** Development of Canadian manufacturing, railway building, long depression from 1870-90 due to machines replacing jobs, and 'boom years' from 1896-1914 as Canada became the fastest growing economy in the world (Cook and Brown 1976).
- **European colonization of Ontario:** The natural environment and First Nations peoples experienced far-reaching change, as largely unrestrained natural resource harvesting cleared forests, wetlands, and shorelines for farms and towns.

- **Second industrial revolution (1850-1914):** New ways to produce steel, electricity, and petroleum power improved manufacturing, transportation (automobiles and railways), and living conditions. Scientific understanding of chemistry and thermodynamics greatly propelled these important discoveries. Communication was also advanced with the telephone and wireless service.

The 20th century hosted many important events including: World War One, the Great Depression, World War Two, the Cold War, space race, and the rise of the U.S. as the primary world power. Canadian milestones include establishment of public health care, other social support programs, civil rights and women's rights, and building a peacekeeping reputation.

1970s onward saw rapid and relentless change:

- **Globalization:** Global shifts in the world economy caused rapid change in Canadian communities and abroad. Globalization collapsed some economic opportunities and opened others. Lifelong employment was no longer taken for granted. Immigration to Canada increased and more communities struggled to manage growing populations rather than facing decline (Harcourt 2006).
- **Urbanization:** Decline of traditionally strong industries in agriculture, natural resources, and manufacturing saw many people move into towns and cities. Communities became less self-sufficient (e.g. for food, fuel, services), more dependent on automobiles, & urban sprawl grew.
- **Social and environmental awareness:** Awareness about environmental issues increased (e.g. pollution, forest destruction, toxic waste). The severe gap between wealthy and poor people continued to widen. In 1999, the richest fifth of the world's people consumed 86% of all goods and services while the poorest fifth consumed just 1.3% (UNDP).

The 21st century: Ontario and much of the developed world strived to break out as a leader in the new economy based on knowledge, information, technology, research, and creative industries. The public also demanded more involvement in community planning that integrated social, environmental, and economic concerns.

Important headlines include:

- 9/11 terrorist attacks
- Climate change ("The Inconvenient Truth movie", Kyoto Protocol, Copenhagen conference)
- Western economies challenged by emerging nations, like China and India
- Severe inequality between rich and poor plus rising food & fuel prices
- Widespread cell phones and Internet play an increasing role in business and politics
- Worry about natural resource scarcity (e.g. need for renewable energy)
- Wildlife and ecosystems in trouble (e.g. over-fishing, endangered songbirds, caribou, polar bears)
- Green economy and reducing carbon footprints enter the mainstream

2.3 Huntsville historical timeline (up to 2010)

Table 3 (next page) presents Huntsville's historical timeline. Major eras are highlighted in light yellow, the left column identifies significant events and probable 'agents' or drivers of change that may have triggered the event, the center column summarizes general impacts of the event, and the right column summarizes ways Huntsville was impacted.

Table 3 - Historical timeline of major disturbances that have shaped Huntsville (up to 2010)

Agent of change	General impact	Impact in Huntsville
Era - End of last ice age (10,000 years ago)		
Warming period when temperatures rose	<ul style="list-style-type: none"> - Melting glaciers filled lake basins and left behind sand, gravel and clay - White pine trees grew in abundance 	<ul style="list-style-type: none"> - Wildlife flourished, dried-out lakes provided some good farmland, waterways provided transportation, beautiful landscape continues to attract people
Era - First peoples (beginning ~7000 years ago)		
Before Europeans, the Anishinaabe Ojibwe people inhabited Muskoka	<ul style="list-style-type: none"> - Established villages, agriculture, efficient food gathering methods, extensive canoe routes 	<ul style="list-style-type: none"> - Muskoka area mainly used for winter hunting - Minimal impact on the natural environment
Era - Early Europeans (1615 - 1885)		
<p>1. 1812 - Threat of American invasion</p> <p>2. 1852 - treaties secured Native territory including the Muskoka Region</p> <p>3. 1868 - “Free Land Grant” lured settlers to Northern Ontario</p> <p>4. 1883 - Canada-Pacific Railway opened the prairie provinces for settlement</p>	<ul style="list-style-type: none"> - 1. End of the ‘War of 1812’ left Britain the top world power for the next century - Canada and U.S. created a trading relationship - 2. Muskoka opened to European settlers but nearly abandoned by 1865 due to poor interest - 3. More settlers lured to Muskoka, rich tourists visit the area for hunting, fishing, and resorts - 4. Many Northern Ontarians left for easier farming in the prairie provinces 	<ul style="list-style-type: none"> - 1. Sparked military interest in Muskoka waterways to find an ‘interior route’ connecting Georgian Bay and the Ottawa River - no suitable route was found - 2. By 1865 few settlers reached north Muskoka, W. Cann was the first white settler in Huntsville (1860) - 3. In 1869, Cpt. Hunt established Huntsville, forest cleared by hand but poor soil made farming difficult - Transportation improvements (1870s): Old Muskoka Road and waterway locks allowed steamships and more people to reach Huntsville - 4. Abandoned farms became lumber camps as white pine logging came into full swing

Era - Early economic growth (1886-1914)		
<p>1. 1886 - Railway arrived in Huntsville</p> <p>2. 1894 - Huntsville fire destroyed many buildings on Main Street</p> <p>3. Early 1900s - Canadian economy flourished, upper-class had money to spend!</p>	<p>- 1. Arrival of the railway and lumber industry were the first big changes on the landscape as vast areas of forest were cleared</p> <p>- 2. Not applicable</p> <p>- 3. Muskoka became Canada's paramount tourist resort region and attracted many rich southern Ontarians and Americans</p>	<p>- 1. Huntsville the manufacturing hub: 1 in 5 men worked in the lumber industry, but there were also merchant and service industries and a large tannery</p> <p>- Socio-economic advancements by 1890: college for ladies, hospital, library, new school, sports teams, tourism brochure, Deerhurst Lodge opened</p> <p>- Environment: forests were clear-cut, soil washed away by erosion, tannery waste badly polluted the Muskoka River</p> <p>- 2. New buildings constructed with solid brick or brick veneer, business sector recovered and town population grew, efficient Fire Brigade avoided repeat disasters</p> <p>- 3. Tourist centre: Huntsville was a key tourist destination</p> <p>- Artist Tom Thompson visited Huntsville & Algonquin Park, completing paintings that became Canadian hallmarks</p> <p>- Huntsville became an official Town in 1901, pop. = 2000</p> <p>- Local Portage Railway vital for transporting freight & people</p>
Era - World Wars and the Great Depression (1914-1945)		
<p>1. 1914 - Canada entered WWI alongside Britain.</p>	<p>- 1. Increased manufacturing and farming</p> <p>- After the war, manufacturing rapidly expanded and standard of living and luxury purchases increased (e.g. radios, automobiles, electric lights)</p>	<p>- 1. Muskoka provided infantry and high demand for wood products boosted the local economy</p> <p>- Huntsville after the war: autos began to replace horses, transition from resorts to private cottages, a large portion of summer residents and tourists were Americans</p>

<p>2. 1929 - Stock market crash signaled beginning of the Great Depression</p>	<ul style="list-style-type: none"> - 2. Over 15% of Ontario's population enters the welfare system 	<ul style="list-style-type: none"> - 2. Tourism declined, widespread hardship, farming was primary occupation, high school education rare - Tannery declined due to popularity of rubber and plastic substitutes for leather - Transportation: New Ferguson Highway built, Town relied on gravel roads, steamboats, and trains
<p>3. 1939 - Canada entered WWII alongside Britain</p>	<ul style="list-style-type: none"> - 3. Factories reopened and improved wages and living conditions (sanitation) - Women enter the workforce 	<ul style="list-style-type: none"> - 3. Tourism became popular as European vacations were not an option, local travel by train / steamship popular due to gas and oil rations limiting auto use, farming waned
<p>Era - Post-war good years and recession (1945-1959)</p>		
<p>1. 1945 - end of WWII</p>	<ul style="list-style-type: none"> - 1. Economy: Canadian economy greatly expanded to produce consumer goods and created factory jobs - Social: Families grew as this time period produced the "baby boom generation" 	<ul style="list-style-type: none"> - 1. Shorter vacations hard on economy but availability of autos and gas greatly increased traffic to Huntsville - Demand for more luxurious cottages / motels (e.g. indoor toilets, TV, telephones, pools) - Extended tourist season: winter tourism, snowmobiling, and fall festivals - End of an era: closure of Portage Railway and steamships due to widespread automobile use
<p>2. 1958 - First major international economic recession since 1930s</p>	<ul style="list-style-type: none"> - 2. Economy: Downturn in primary resource industries, auto & luxury sales 	<ul style="list-style-type: none"> - 2. Huntsville economy buoyed by tourism but other Northern Ontario towns reliant on a single primary resource industry, like forestry or mining, were hit hard
<p>Era - Unrest and change (1960s)</p>		
<p>1. 1960s - Economic transition from reliance on primary resources to manufacturing</p>	<ul style="list-style-type: none"> - 1. Economic: Foreign U.S.-owned factories / plants established in Ontario - Enormous expansion of Ontario's economy, infrastructure, auto industry - Social: Social movements (feminism, civil rights), international political unrest, and turmoil of the Cold War - Transportation: Highway 401 opened - Canada's busiest highway 	<ul style="list-style-type: none"> - 1. Primary resource industries (logging) declined: government provided assistance to help secure the Town's future as an industrial and tourist centre - New industries (1960-70s): Wiik-Hoeglund, Canusa, Domtar, Algonquin Products, and Kimberley Clark (latter is still a top employer in the Town today) - Social: Ontario Gov invested in health and education - Transportation: new 401 highway improved link between Muskoka and southern Ontario tourists and cottagers

<p>2. 1961 - Tannery fire</p> <p>3. 1962 - bestseller book "Silent Spring" about pesticides and wildlife</p> <p>4. 1969 - Men walk on the moon</p>	<p>- 2. Not applicable</p> <p>- 3. Environment: Increased environmental concern and activism</p> <p>- 4. Technology and imaginations opened to seemingly unending possibilities</p>	<p>- 2. Many jobs suddenly lost but tannery site became a prime location for new industry (KWH Pipe)</p> <p>- 3. Environment: Lake Associations lead the charge to, address acid rain, sewage, garbage, & shoreline protection</p> <p>- 4. Same point</p>
<p>Era - Globalization and decline of manufacturing industries (1970-1999)</p>		
<p>1. Economic events:</p> <ul style="list-style-type: none"> - Globalization and new technology saw many manufacturing companies relocate to developing countries - Two major recessions 1973-75 and 1990-92 - 1995-2000 growth of computers and Internet <p>2. 1970s - arrival of District government in Muskoka</p> <p>3. Sustainability: 1986 - 'Sustainable development' promoted</p>	<ul style="list-style-type: none"> - 1. Changing economy: High price of oil in 1970s severely impacted global econ - 1980-2000, Canada shifted to a more service-based economy - Changing communities: By 1981 ~80% of Ontarians lived in cities - Socio-economic: 1995-2000 fairly prosperous years but inequality grew quickly in Canada, even worse than U.S. <p>- 2. Two-tier system of local government became more common in Ontario</p> <p>- 3. Sustainability: International meetings held as countries struggled with concern about the environment</p>	<ul style="list-style-type: none"> - 1. Muskoka was a tourism hotspot, but suffered from trends, such as U.S. dollar exchange rates - High employment growth 1981-2001: Huntsville was best of all Muskoka and top 6th community in N. Ont, economy was slowly diversifying - Shift to service-economy 1981-2001: high-paid primary resource jobs declined, the service sector grew but provided lower-income jobs - Other worries: Average income in Huntsville below provincial average, also trends of youth leaving town and an aging local population continued <p>- 2. Creation of Muskoka District government: brought significant change for Huntsville and other Muskoka communities, impacted planning for growth and development, infrastructure (roads, water, sewers), upgraded social services, improved tourism marketing (etc)</p> <p>- 3. Community growth: Development spread out around Huntsville, both sides of the 'Narrows' and nearby lakes surrounded by year-round homes</p>

to address social, environmental, and economic issues together	and development, e.g. Montreal Protocol (ozone hole) and United Nations meetings	- Cottage and Lake associations (and others) worked to protect scenery and quality of life
Era - Rapid change and the knowledge-based economy (2000-2010)		
<p>1. Early 2000s: recession and 9/11 terrorist attacks</p> <p>2. 2002 - Huntsville's Strategic Economic Development Plan created</p> <p>3. 2007 - Closure of automotive manufacturing industry in Huntsville</p>	<ul style="list-style-type: none"> - 1. Economic downturn as U.S. recovered - Overall, 1995-2007 fairly prosperous - 2. Manufacturing and primary resource industries continued to decline, many communities focused on growing service-based industries - 3. Companies relocated to increase efficiency due to competition with developing countries and rising value of Canadian \$. Other towns suffered similar losses as North America's auto sector became less competitive 	<ul style="list-style-type: none"> - 1. Fewer American tourists hit Huntsville's economy, 6.7% of downtown stores were vacant - Socio-economic worries: area of Muskoka- Parry Sound- Nipissing had lowest average total income and second greatest dependency on gov. transfer payments in N. Ont - 2. Plan designed to balance retail development, viability of downtown, and develop sport and convention tourism - Expanded service and retail sectors: Huntsville Place Mall, Commerce Park, low store vacancy rates throughout town suggested a healthy commercial future - Community improvements: restored Town Hall, Algonquin Theatre, Downtown Community Improvement Program, Business Retention and Expansion, public transit service, elite event-tourism, high-speed Internet (etc) - 3. Sudden loss of year-round jobs as 'Hidden Hitch' factory closed down, serious hit for economy & community - Serious concern: 2007 region-wide report revealed concern regarding low education and over half the workforce in low-paying often seasonal service-sector jobs - Retail expansion continued: big box stores and chains, low downtown store vacancy rate of 4% (in 2007)

<p>4. 2008 - Major international economic recession, U.S. financial and real estate crisis</p>	<ul style="list-style-type: none"> - 4. Unemployment hit Ontario harder than other provinces, downturn highlighted rapidly growing wealth inequity 	<ul style="list-style-type: none"> - 4. 2008 Community Master Plan: focused on attracting retirees to Huntsville, developing sport / event tourism, and post-secondary education - Sport and event-based tourism grew as the town hosted world class sporting events, but far fewer American tourists - Local poverty and affordable housing continue to be serious and growing issues
<p>5. 2008-2010 - Canada Government announced Huntsville will host G8 conference in 2010</p>	<ul style="list-style-type: none"> - 5. By 2010 many Ontario communities remained in economic recession 	<ul style="list-style-type: none"> - 5. Huge stimulus from G8/G20 funding (~\$30 million): spent on University of Waterloo research facility, Canadian Summit Centre (recreation facilities, meeting space), infrastructure upgrades, Internet, etc - Expected to help Town diversify tourism and grow the Forbes Hill Research Park
<p>6. 2009 - Federal Gas Tax helped fund development of Huntsville's sustainability guide (the Unity Plan)</p>	<ul style="list-style-type: none"> - 6. Poor community planning in 1960-90s met harsh critique (e.g. urban sprawl) - By 1990s it was obvious the environment had to be integrated into planning - Other driving factors: high fuel prices, climate change, quality of life, ethics... 	<ul style="list-style-type: none"> - 6. Protecting environment and community planning: address urban sprawl, attract new businesses and youth, improve transportation options and accessibility (etc) - Town hopes to attract new opportunities and develop a global reputation in environmental research and the 'green economy' but faces competition from other regions with similar goals, such as Niagara Region

2.4 Insight gained from the historical timeline

This section summarizes key insights regarding:

- How Huntsville responds to change
- Recurring disturbances and vulnerabilities
- Underlying drivers of change in the community

2.4.1 How Huntsville responds to change

Many Think Tank participants felt a lot of Huntsville's residents are able to cope with or adapt to sudden change or hardship. It was, however, widely acknowledged that many people in Huntsville live in poverty (due to many different reasons) and do not have enough support to adapt when life becomes even more difficult. Questions were raised about whether Huntsville has really been forced to adapt or is just continuing with business and attitudes 'as usual'.

Positive support

- *During the downturn in the automotive sector...some people who lost jobs chose to retire, which resulted in less of a hit on the community. Others chose to leave which can be hard on a small town. Telecommunication infrastructure arrived around the same time and allowed for adaptation in that direction too. There were also retraining efforts by the provincial and federal governments.*
- *We survived the collapse of the lumber industry and literally rose from the ashes like a phoenix. We survived the American tourist onslaught...and traveling salesmen when their numbers were greatly reduced. We have done this by attracting great minds that want to contribute to our town's success.*
- *Huntsville has survived street leveling fires and economic disasters. It has done this through a deep sense of community, self-help and a willingness to help others. It is a deep-rooted ethos that has seen Huntsville through thick and thin for more than a century.*
- *It has been a work in progress for people to adjust and value the environment. It seems problems will need to get severe enough for people to seriously consider trade-offs that need to be made.*

Critical perspectives

- *For the economic recession the attitude was "well that was tough but now we're through it let's move on" instead of thinking "how can we avoid that next time".*
- *There was a building boom during the recession leading up to the G8...construction and tourism was supported so people were not in enough 'pain' to be really forced to change their ways.*
- *Before the manufacturing downturn happened, we had never considered what would happen if those industries and good-paying jobs disappeared. We need to see further outside the local bubble - then it would have been obvious the automotive sector was taking a beating.*
- *Our community is on the global stage now. Just because you have resources doesn't mean you're the only person who can do business. East Asian economies are emerging with very well-educated and creative minds. Our community needs to work with boards of education and post-secondary education to meet the knowledge economy of tomorrow.*

- *There is more communication now about emergency planning (after the Empire hotel fire), but rose-coloured glasses are still on in Huntsville...people in need are all around us. A lot of focus is placed on economic sustainability and making the town attractive to tourists rather than helping our own local population.*

2.4.2 Recurring disturbances and vulnerabilities

Social - Economic

- **Rise and fall of industries** in the primary resource and automotive manufacturing sectors highlight the need for economic diversification but also to be aware of global competition and listen for alarm bells or warning clues that industries may be in trouble
- **Long history of reliance on tourism** requires accepting the vulnerability of this sector - e.g. due to competition with other destinations, less reliable winter and summer weather. It is critical that Huntsville continue its efforts to support opportunities in other sectors (e.g. environmental research) and diversify the tourism base (e.g. elite sports tourism, conferences).

As stated by a participant, “We have to jump on opportunities that may not always be obvious or make the best sense right away, like when winter tourism or cottage resorts were novel ideas.”

Canada’s tourism sector hit hard in the last decade

Many tourists have tightened their belts and reduced travel and spending partly due to:

- 2001 “9/11” terrorist attacks
- 2003 SARS virus scare
- High gas prices
- Strong Canadian dollar
- 2008-2010 recession and financial crisis

By 2009, American tourists visiting Ontario had dropped by 56% compared to the late 1990s. Many communities heavily reliant on tourism or manufacturing are in a fragile situation, with downturn possibly causing significant job losses. People are traveling closer to home and tourist business owners and regions must be creative to attract visitors. (Beech 2009)

- **Economic recession at national and international levels** can greatly impact the community. Social assistance payments and program funding can change suddenly due to government budgets. This highlights need for community-based development that builds on and leverages local assets to complete local initiatives, improved community and regional self-reliance, and improved communication channels between the different levels of government, businesses, and society.
- **Long-term planning / risk management** to explore whether an economic opportunity fits the best interest of the community (e.g. meaningful lasting employment). Need to hear knowledge and opinions from the community and business sectors before producing policies, plans, or bylaws.

- **Improved communication** is required to facilitate planning and knowledge sharing. Communication materials should be designed for the target audience (everyday people!) to encourage engagement and avoid overwhelming or excluding people. Use a variety of communication tools, media, strategies, and messages.

Environment

- **Natural disasters** (e.g. wind storms, snow storms, floods, Hurricane Hazel) and human-caused disasters (e.g. fires on Main Street, energy blackouts) both point to the need for emergency preparedness and communication planning that can spread information, organize people, help those in need, and calm panic.
- **Over-using natural resources** (e.g. clear-cutting forests, farming practices that depleted good soil) is a recurring theme.
 - *In the 1860s, the land was almost 100% clear-cut, but today we have regained 94% forest cover. If it happened again would we be as successful at achieving this result? Huntsville's economy seems resilient, but we must remember the environment is our main employer!*
 - *Jobs the tannery brought had people jumping up and down...but the tannery let a lot of pollution into the town. We need to be careful about getting all excited over things that bring just jobs. We must think of the repercussions as well and think of the long-term vision.*
- **Weather events and climate change** (e.g. cool summers, warm winters) make tourism less reliable. If snowfall significantly decreases, lost winter tourism would really hurt the income of motels, restaurants (etc). Options for filling in the winter economy are required.
- **Changing attitudes** is another recurring obstacle:
 - *We've become complacent. Conservative thinking and slower pace of life...make it harder to get people involved and aware of climate change. The population by and large does not emphasize being well informed, we need to overcome that inertia.*

2.4.3 Underlying drivers of change in the community

The root causes of major changes in a community are often things that slowly build up in the background and make a problem worse over time. Identifying these root causes makes it possible to watch for warning signs, respond quickly or nip problems in the bud. Input from the Think Tank is summarized below.

Prominent forces of positive change in the community:

- Youth and students
- Active retired and semi-retired permanent and seasonal residents
- Community groups and citizens advocating change (e.g. LEAF, Arts and sports groups)
- Community pride, volunteerism, competitive spirit (e.g. against other Muskoka towns)
- Town Hall staff and Town Council
- Connection to federal and provincial funding
- New residents that bring ideas and experience to enhance Huntsville
- Hardship can bring positive change by providing impetus for the town to find new solutions

Most commonly mentioned root causes of social, economic & environmental problems:

- Lack of education and awareness about issues
- Low incomes and economic dependence on tourism and service industries
- Competition with Ontario and the outside world to attract entrepreneurs and good jobs
- Only a handful of people have the ability to make change actually happen

Q. What was the #1 most commonly mentioned root cause of Huntsville's tough problems? A. Attitudes that don't support change and sustainability.

- *I don't think we'll really change until something drastic happens – we live in a bubble where things still look good. We haven't gotten to the stage where we think about how we might suffer in the future if we don't change.*
- *We need to think "what's better than this?" and think how to move to something better! If you shoot for the moon and miss at least you land among the stars, but if you shoot for 3 feet you're not likely to go 4 feet. You have to be willing to stretch yourself.*
- *The prospect of new jobs gets people jumping up and down - but we must first think of any repercussions and think of the long-term vision. There's also a "not in my backyard attitude" - people don't want affordable housing right next to their property.*
- *Real change happens when people decide to change instead of waiting for the government to change their lives. Fear is still what drives most people.*

Other root causes of community problems (according to the Think Tank):

Economic:

- Global economy and competition with developing nations where labour is cheaper
 - Societal preferences for spending and vacations
 - Muskoka out-pricing itself from tourists and new residents
 - Keeping up with technology
 - Value of the U.S. dollar
 - Economy is not valued as strongly as the environment or social issues
 - Preference to spend tax dollars on big projects and new toys
 - People don't like cut backs in services or increased taxes
 - Local economy and competition with other Muskoka towns rather than regional cooperation
- *Economic development should be addressed district wide, but municipalities said "We do our own economic development we don't need regional planning". There's lots of funding available that requires regional buy-in, which is hard to get here. Huntsville tends to go ahead and do a lot on its own.*

Social

- Ability to think about and plan for the long-term and future generations
- Population growth at the local and global scale
- Demographics - many old folks and few youth
- The influence of news media on people's decisions
- Lack of momentum and endurance to fully address problems (e.g. job loss, families on welfare)
- Local poverty - it's hard to think about sustainability when people are struggling to survive
- Preparing intellectually competitive youth (e.g. high quality education)
- Not taking advantage of opportunities, novel ideas, and attracting entrepreneurs

- Lack of clear and effective communication
- Accountability and trust in elected officials
- Apathetic or negative attitudes towards the environment, sustainability, and change in general
 - *Public perception of problems is a serious issue and the youth are helping to change this outlook. Public relations and communication are vital. Public education continues to be needed - we were lulled into complacency because natural resources seemed so abundant. Now we have to consider whether the water is safe and clean and if it will be there for future generations. We need to look at the long-term costs.*

Environment

- Climate change
- Recognizing the monetary value of goods and services the environment provides
- Recovery can be very slow once an ecosystem is damaged (e.g. lakes impacted by acid rain)
- Recognizing the economy depends on the environment
 - *Huntsville seems resilient from an economic point of view, but we must remember the environment is our main employer! We could lose it all. The root causes of these problems are a matter of value choices and how you see yourself and the reliance of the community on the environment. This applies to Muskoka in general. Value choices underlie current and future issues. We need the drive to not repeat past mistakes.*

Next Step:

The next chapter builds on insights gained in this chapter by exploring several potential future scenarios of what Huntsville could become in 25 years, in the year 2035.

Chapter Three

Exploring future scenarios

Chapter Summary: The Think Tank and workshop participants examined several future scenarios of what Huntsville could become in 25 years. The scenarios were based on how Huntsville deals with issues across the three main pillars: economic (e.g. growth and development), social (demographics, amenities, culture, population growth), and environment (e.g. land-use planning, green spaces, ecosystem health). Scenarios were used to identify desirable / undesirable traits of Huntsville's future and explore how positive or negative change could impact this vision.

Results are organized to highlight community opinion regarding:

- Whether each future scenario is actually sustainable and resilient
- Actions that reduce Huntsville's resilience
- Actions to increase sources of community resilience
- Outline potential threats, thresholds of concern & assumptions.

3.1 Setting the stage - constructing and examining future scenarios

During the first private interview, Think Tank participants described positive and negative images of Huntsville's future and recommended actions to start shaping a desirable future. The group described twelve different scenarios, which became the focus of the first online discussion. After reviewing all the scenarios, each participant stated his / her preferred scenario. The most popular positive scenarios were scenario A (identified by 36% of Think Tank) and scenario B (identified by 50% of Think Tank). The most common negative image was scenario C (identified by 59% of Think Tank).

Refer to Appendix 1 to see posters used to illustrate these three scenarios.

Scenario A: Stay the same + more opportunities and environmental protection

- Similar population size, small-town feel, vibrant downtown, retain youth, all levels of the community have good employment, quality of life, and able to raise family with dignity
- Development not at the expense of the environment, which would be in great shape or improved from today, improved public access to natural lands

Scenario B: Careful growth + magnet for green research and youth

- Urban densification or growth of several pockets / hubs in rural areas rather than one expanding urban core, all ages and families attracted to the high quality of life
- Focus is on attracting and growing environmental research and spin-off industries that respect sustainability principles and the environment, provide good livelihoods, and attract youth

Scenario C: Big-like-Barrie + environmental destruction

- Clear-cut forests, polluted lakes, lost small-town feel, large and tall buildings, urban sprawl, difficult to keep youth because of lower quality of life
- Service-hub for vacation travelers passing through and people who work in Toronto, poor paying jobs, strip malls, transient lifestyle with no real connection or roots in the community

The Think Tank and the community workshop both engaged in lively debate over whether Scenario A or B should serve as Huntsville's long-term vision and how best to avoid Scenario C. The results are presented starting with key points from the Think Tank and then from the community workshop.

3.2 Think Tank - key points from scenario exploration

During the first online discussion, the Think Tank reviewed all the future scenarios and action strategies recommended during the private interviews. The group discussed which scenario should serve as Huntsville's 25-year goal and which action strategies are the most important. Responses were sifted to focus on the RA's Main Issues (growing the creative economy, land-use planning to protect the environment, and leadership that engages the community in decision-making).

Scenario A - Stay the same + more opportunities and environmental protection

Common threads: Participants who preferred this scenario generally felt the town should stay close to its current size, maintain / improve Huntsville's environment and quality of life, and become fully sustainable. Though environmental protection was emphasized, social priorities were also underscored (e.g. addressing poverty, affordable housing).

Desirable traits that should be targeted and nurtured:

Economic

- *Huntsville has no substantial economy without the environment preserved and enhanced. There's plenty of room for economic growth so long as it doesn't damage what we've got, such as becoming an environmental education centre.*
- *Growth does not have to mean size and numbers, instead it can be growth in knowledge, efficiencies, co-operation and vision. Web based industries and entrepreneurial encouragement can help maintain a balance of ages within a community which gives everyone a greater sense of belonging, shared heritage and generational gap closing nurturing.*
- *When any project is planned, the first question MUST be how will it affect our environment. There must be tough new legislation with no compromise for the Unity Plan.*

Land-use planning / design

- *Endless growth is simply not sustainable. At some point, we run out of resources, and deplete the ecosystem functions and services we rely on for a healthy economy and society. We live in a world with a finite carrying capacity, and we need to adapt our ways to fit into this reality.*
- *Making Huntsville a model sustainable town could be an over-all mission that incorporates celebrating current successes, developing community education and public awareness programs, climate change and adaptation programs (among others).*
- *To me sustainability does not imply traditional ideas of population growth or economic growth. Increased wealth across the board is an objective while maintaining/improving the integrity of the natural environment and the lifestyle it provides.*

Leadership

- *Avoid temptation to re-invent the wheel. Other communities have success stories that can be easily adapted to respond positively to Huntsville's strengths and weaknesses. Involve a*

wide range of community organizations and agencies in promoting sustainability and stress the inclusiveness of sustainability (it's everyone's challenge and responsibility).

- *We must put self-interests aside and collectively make tough decisions and efforts to change. We need to emphasize the importance of personally being educated and encourage the community to be educated about what is happening around them so decisions are based on solid fact.*
- *The problem is we need trust in our elected and hired officials to be honest and upfront in their governance decisions. When information is not made available to the public, it leaves much to the imagination, which is not always a good thing.*

Scenario B - Careful growth + magnet for green research and youth

Common threads: Participants who preferred this scenario generally felt that limiting population growth was not realistic. Growth was argued to be unavoidable and necessary to attract creative and knowledge-based industries. The environment, high quality education, and health care were also strongly emphasized.

Desirable traits that should be targeted and nurtured in the short-term:

Economic

- *Jobs and economic growth can emerge from assets and talent already in the community. Craft strategies to promote centres of excellence, enterprise incubators, further access to post-secondary education and training. Critical missing pieces of the picture include attainable housing and the lack of regional economic planning.*
- *Focus on future sustainable goals such as a thriving Forbes Hill Research Park that creates great jobs and does not threaten our local charm.*
- *Build on our assets, encourage, embrace and expand businesses and industries that demonstrate sustainable practices. As we did with the G8 – seize the opportunities (e.g. biomass energy)!*

Land-use planning / design

- *A community is defined by its people, culture, urban design, access to libraries and learning, good jobs and good pay. If we concentrate on building our community based upon sound sustainability principles, including densification, renewable energy, walkable and bikeable streets, etc, this community can grow at a moderate rate for generations.*
- *Promote efficient growth in urban areas where existing services are located, future transit can be promoted, attainable housing can be provided, health care can be located, impacts on the natural environment can be minimized and people can interact with each other. This will be especially important to provide services to an aging population.*

Leadership

- *Community leadership that recognizes the value of the Unity Plan and consistently addresses the needs of the plan should create community awareness, improved attitude and motivation to participate. Community planning based on administration and the community as co-participants.*
- *Political leadership sometimes requires doing un-popular things! We need to elect leaders who will actually listen, then lead, not just follow.*
- *We need to develop a leadership philosophy that includes listening and broad consultation and involve the community and not get ahead of them.*
- *Community engagement, especially of youth, is critical.*

3.3 Community workshop - key points from scenario exploration

At the community workshop (described in [Introduction section iii](#)), a new group of community stakeholders provided input to the RA by examining scenarios A and B (scenario C was used only as a contrasting example to spark discussion). Results were sifted according to the RA's 3 Main Issues.

Q1. Is the scenario actually sustainable?

Scenario A - About 60% of participants thought the scenario was not sustainable

- Limited population can allow better planning and preserve the environment that the economy and quality of life depends on
- How can Huntsville avoid change when it wants to attract new knowledge-based industries?
- The success of this scenario depends on whether people with power share a sustainability vision they are willing to act on and enforce.

Quotes:

- *With very wise planning I suspect this scenario would be sustainable...it would demand much commitment and is contrary to belief that growth = more opportunities.*
- *Growth cannot be stopped or even held in check sometimes - too many people's pay cheques depend on construction therefore more houses will be built as more people move here upon retirement.*
- *Huntsville has stayed the same for many years, but growth like Barrie is all we know.*

Scenario B - All participants, except for two, thought this scenario was sustainable

- This scenario is realistic because it demands slow careful growth, accommodates change, and highlights the need for jobs and demographic change for Huntsville to move forward
- Careful planning is needed to balance the environment, social, and economic factors
- Strong environmental protection goes hand in hand with a vital economy
- This scenario hinges on getting good year-round jobs...where will they come from?

Quotes:

- *If the good jobs have come out of an environmental focus we can balance the environmental impact of increased growth with research and careful planning.*
- *Innovation and youth are the keys to future development... invest in new ideas and create an incubator environments.*

Q2. Is the scenario resilient?

Scenario A - Two-thirds of participants thought the scenario might be resilient

- Planning and communication are easier with a smaller population
- The UWaterloo campus helps attract youth and community education will help people cooperate, understand the sustainable development process, consequences, and they'll make a difference
- Staying the same isn't possible or resilient and doesn't allow the community to grow with new knowledge-based industries

Quote:

- *From a jobs and economy perspective Huntsville has been fortunate but that is because of our beautiful location not our good planning. I don't think that we are planning well for being able to weather the storms. There is too little real protection of our natural world.*

Scenario B - All participants thought the scenario was resilient as long as it underscores retaining young people, good healthcare, transportation, education, research, and jobs

- A resilient future depends on Huntsville being all-inclusive and providing a support network that will allow us to adapt to change, building on our culture of taking care of ourselves
- Vital sources of resilience and progress towards Scenario-B are: careful planning, job creation, political support, and community buy-in

Quotes:

- *Because of the cautious nature of [Scenario B], resources will not be unduly stressed and it can be altered or modified to accommodate unforeseen happenings.*
- *Scenario B incubates good jobs in new industries that can spring up based on global needs and problems - that is resilient.*

Please note: For the next two questions, there was considerable overlap between responses for scenarios A and B. Key points from Scenario A participants are in purple font while points contributed by Scenario B participants are in grey font. To avoid redundancy, Scenario B points were only listed that differed from points made by Scenario A participants.

Q3. What actions could reduce Huntsville's resilience?

Land-use planning

- Poor integration and quality of public services (e.g. health care, schools, transportation, aging infrastructure) and lack of affordable housing
- Environmental negligence or destruction
- Ignoring climate change and peak oil concerns
- Poor control over population expansion
- Lack of financial, emotional, and intellectual investment in community planning

Economic

- Poor economic diversity and stagnation
- Allowing economic growth to override good urban planning / community vision
- Relying on big box store retail for jobs
- Not investing in green alternatives for fuel (impact or oil prices shocks)

Leadership

- Political - town council not embracing and enforcing the Unity Plan, not looking at the bigger picture, addressing environmental issues, or including all peoples' needs
- Leadership losing sight of the ultimate goal of sustainability
- Lack of community engagement
- Rivalries that prevent District-wide coordination

General community

- Lack of multiculturalism and young people or too many seniors
- Insular attitude, fear, community division, lack of creativity
- Complacency, maintaining the status quo, ignoring poverty

Q4. What are the most important stepping-stones to increase Huntsville's resilience to help shape a desirable future?

Land-use planning

- Introduce stronger environmental protection, stricter rules, and increase stewardship
- Offer real incentives to attract young people (e.g. lower building fees for young people)
- Invest in great transportation - convenient and efficient transit, safe and scenic walking / biking, and community education so the public is aware of and voluntarily chooses these options

Economic

- Attract more educational / research institutions and industries (e.g. green technology), maintain high quality of life and market it to attract these companies
- Create an incubator environment that supports creativity and entrepreneurialism
- Tighter bylaws for development and delineate housing development areas to direct growth (e.g. integrate with public transit routes)

Leadership

- Get full community and council buy-in on the Unity Plan, which must have strong and enforced rules, take small steps immediately to demonstrate commitment and progress
- Lead by example, bring in new ideas, seek diverse public input, break down social barriers to participating
- Advance social goals that help create happy and proud citizens, attract young people, and integrate newcomers (e.g. cultural planning)
- Make “ground-up” community-based decision-making the priority rather than “top-down” approach
- Focus on improving clear communication between government and public
- Demonstrate and spread information-sharing - e.g. between government, public, District, and other communities but also opportunities between businesses and sectors

General community

- Effectively educate the public about sustainability
- Invest in top-notch community services (health care, education, active transportation, transit, etc) with particular emphasis placed on education
- Become a more self-sufficient community - e.g. buy from local businesses, food security

3.4 Insight gained from scenario exploration

In addition to the lists of recommended action strategies provided in the previous section, scenario exploration also revealed the following insights:

Examples of common ground from both scenarios to help Huntsville create a 25-year Vision for Future:

- *Focus on what needs to happen to maintain our lifestyle: a knowledge-based society, innovation, a true creative economy where we have a blend of youth, young families and evolving seniors, cottagers, industries, and artists. Attainable housing is needed so people can live and work here.*
- *It becomes very clear that we all are looking at a very similar future. The question is how do we get there? We must put self-interests aside and collectively make tough decisions. We all must make efforts to change. I believe our immediate goal is that of education...so decisions are based on a good solid fact.*

Potential thresholds of concern:

Environment

- Degree of sprawl and densification (e.g. lost small town feel, loss of wildlife and scenic vistas)
- Ecological thresholds: amount of forest cover, water quality, healthy animal and plant populations, population size of rare species, amount of wetlands and natural shoreline, value of ecosystem goods and services (services provided to people by the environment)
- Climate thresholds: average & extremes of temperature increase, snowfall, rainfall, storms, etc
- Majority of population accepts and values dependence on the environment

Economic

- Proportion of local workforce employed in tourism and service industries (vs. knowledge-based industries)
- Proportion of local workforce engaged in part-time or seasonal vs. full-time work (e.g. receiving minimum wage, income and job security)
- Local attitude and 'business climate' that actively supports creativity / innovation (attitude shift)

Social

- Degree of community influence over municipal decision-making (degree of power-sharing between formal leadership and the community)
- Population size and age demographics (e.g. proportion of retirees to young people and families)
- Community wellbeing indicators, such as the number of families living below or near poverty line (e.g. family income relative to housing cost, welfare dependency, working poor, unemployment)

Thresholds can impact each other: For example, living on the edge of town in order to find affordable housing, spending more money on transportation to get to work (e.g. due to increased gas price), and minimum-wage employment could all converge and push Huntsville into a degraded state with high poverty. In addition, poor human wellbeing and environmental neglect often go hand in hand.

Threshold Spotlight - breaking the cycle of poverty through affordable housing

Many families living in poverty live in housing that is not affordable. There are ~500 Muskoka families on the social housing wait list. In Huntsville there is a substantial shortage of affordable housing (only 178 social housing units in 2010).

"Habitat for Humanity" (non-profit affordable housing provider) home-owners discovered:

- 36% were less reliant on social assistance
- 33% moved on to better jobs
- 53% noticed improvement in child behaviour
- 24% of parents went back to school (with 30% returning to college or University)
- 39% showed remarkable improvement in children's school grades

The number of families spending a disproportionate amount of their income on housing costs is an important factor to monitor, as it has such far-reaching impacts.

CMHC 2004, Cassian 2010 (Huntsville Affordable Housing Symposium)

Potential threats:

- Degree of commitment to the Unity Plan by Council, businesses, community
- Barriers that prevent or discourage community stakeholders from participating
- Local 'culture' that stifles innovation, risk taking, creativity, and entrepreneurial options
- Negative or apathetic attitudes and mindsets towards sustainability and community planning
- Negative impacts of development on the environment (e.g. due to conventional subdivision design)
- Negative impacts of economic growth / populations growth on disadvantaged groups in society
- Impact of low educational attainment on individual and family wellbeing and ability of the local workforce to attract desired industries

Assumptions:

- **Highly localized approach** will sufficiently advance the sustainability and resilience of the social-ecological system that Huntsville is part of (e.g. ability to address broader scale problems)
- **Increased community involvement** and degree of control over decision-making will propel progress to become a sustainable town (e.g. degree of understanding and acceptance of key issues, options, and alternatives; ability to build consensus; power-sharing; timeliness)
- **Environment will continue to buffer and adapt to disturbances** and supply the currently enjoyed bundle of goods and services (e.g. recreation opportunities, wildlife habitat, water and air quality, etc). Climate change may shift the rules of the game and have unexpected impacts
- **Tourism remains a booming business option** - e.g. competition against other tourism-towns, reliance on dispensable income, cost and availability of oil for transportation
- **There is sufficient economic diversification** to support the town if significant job loss were to occur in the tourism sector
- **Some knowledge / research / IT industries will choose to locate in Huntsville** - requires effective marketing to attract businesses, sufficient education and skills in local workforce
- **Knowledge- and IT-based industries stay in Ontario / Canada** rather than locating in emerging nations, such as China and India
- **Economic opportunities and growth** do not threaten the wellbeing of future generations

Next step: The next chapter builds on insights gained so far by looking at the 'bigger picture' and using this perspective to identify how key sources of community resilience could be improved.

Chapter Four

Looking at the bigger picture - the adaptive cycle & important connections

Chapter summary: This chapter focuses on ‘bigger picture’ considerations that impact Huntsville by performing three main tasks:

- Understanding Huntsville’s current location in the adaptive cycle
- Identifying important connections within and outside the community that strongly impact Huntsville
- Using the adaptive cycle to look for windows of opportunity, vulnerabilities, and strategic management options

The Think Tank and literature review were the primary sources of information.

4.1 Seeing the bigger picture and the adaptive cycle in motion

Resilience is an intricate dance between change and stability. It requires taking advantage of opportunities provided during both downturns and upswings. Knowing where Huntsville falls in the adaptive cycle reveals strategic insight about how to encourage positive change. The adaptive cycle was described in detail in the [Introduction](#) and is illustrated in Figure 2 below.

<p style="text-align: center;">GROWTH</p> <ul style="list-style-type: none"> ○ Lots of flexibility and creativity ○ Many people can access resources ○ Take advantage of opportunities ○ Build up resources to keep fueling growth ○ Things can change quickly! 	<p style="text-align: center;">MAINTENANCE</p> <ul style="list-style-type: none"> ○ Flexibility and creativity seem less encouraged ○ Resources get “locked up” by fewer people ○ The system seems more rigid ○ Things change slowly...
<p style="text-align: center;">RENEWAL</p> <ul style="list-style-type: none"> ○ Creativity and new ideas are encouraged ○ Competition over freed up resources ○ Momentum and commitment to the new plan builds up ○ Potential for something new to take shape or rebuild the old system 	<p style="text-align: center;">RELEASE</p> <ul style="list-style-type: none"> ○ Sudden disturbance causes rapid change ○ Resources are suddenly available ○ New opportunities begin to appear ○ Need create a new plan ○ There is confusion and the future is uncertain...

Figure 2 (repeated) - Four phases of the adaptive cycle

The image of a horizontal ‘figure-eight’ in Figure 9 (next page) is commonly used to illustrate how a community moves through the adaptive cycle. Imagining the figure-eight is a roller coaster shows faster and slower parts of the cycle. The sudden drop from the Maintenance to Release phase injects momentum, which slows in the Growth phase and slows down even more in the Maintenance phase.

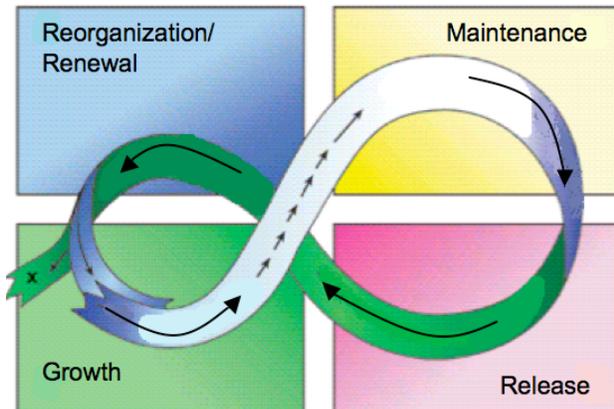


Figure 9 - 'Figure-eight' illustration of the adaptive cycle (source: Holling et al. 2002)

The need for renewal: A community is made up of many smaller entities (e.g. businesses, organizations, projects, policy planning, etc) and each experiences its own adaptive cycle. Change happens quickly at smaller levels and slowly at larger scales. 'Release' events at smaller levels can breath new momentum and energy into the overall community. For example, a new businesses plan could emerge and evolve into a knowledge-based industry offering local jobs.

- Not interfering with change occurring at smaller scales can strengthen the resilience of the overall system in the same way that allowing small forest fires to burn naturally helps prevent widespread catastrophic fire - e.g. by killing diseased trees and creating space for younger trees to grow.

If several sectors are in the Maintenance phase, the overall community can become more vulnerable. A sudden disturbance could spread like the domino-effect, potentially pushing several sectors into a chaotic release phase at the same time. This can have severe repercussions for the community.

- For example, closure of a local industry + change in provincial leadership and sharp budget cuts to social programs + reduced tourism due to a sudden event, like a flu virus scare, and unusually cold summer weather could all bring considerable hardship to the community.

Cascading change: Connections between adaptive cycles occurring at different scales can create a phenomenon called **cascading change**. This happens when an event or disturbance at one level triggers change in another level, like the domino effect. This can have positive or negative consequences (Figure 10 next page):

- **Positive example:** A cascade effectively transmits a new idea to address 'sustainable transportation' all the way from the innovator's boardroom table to the policy table of the provincial government. This would normally require considerable time and investment as the innovation slowly worked through barriers and government bureaucracy. But when adaptive cycles from different scales 'line up' at just right the time, suddenly the innovation can advance quickly.
- **Negative example:** A modest increase in the price of gasoline pushes families that are 'just getting by' beyond their financial means, resulting in mortgage foreclosures, job loss, and

placing families in a cycle of debt and poverty. Amplify this problem across many communities and broader economic recession could soon loom on the horizon. Each separate event may have been easily managed, but when they all converge the community's resilience is truly tested.

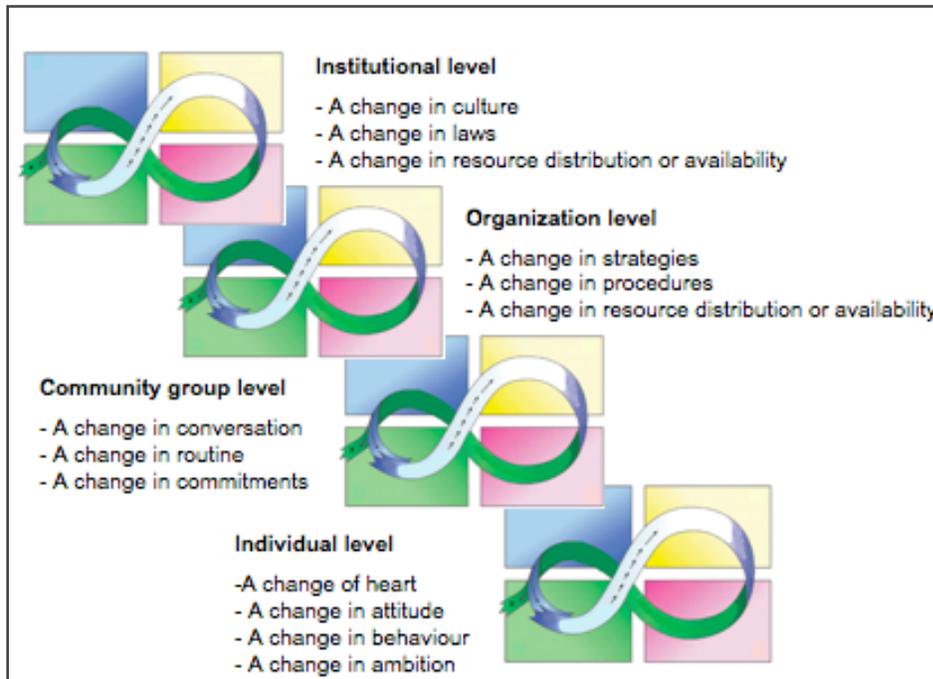


Figure 10 - Example of a 'cascade effect' as interaction between individuals, groups, organizations, and institutions influence change in each other (source: Westley 2008)

4.2 Huntsville's location in the adaptive cycle

Most Think Tank participants felt Huntsville is currently between the renewal and growth stages. It is difficult to know exactly where the overall community sits in the cycle because the system can incorporate different phases (e.g. since sectors & businesses are each in different parts of the cycle).

Common threads: Huntsville just went through a great deal of change due to the surge of G8 funding, the new Town Council could bring more change, and everyone's curious to see whether the town keeps up its momentum. Since things are always changing, several people underscored the need for Huntsville to stay on its toes and not have all its eggs in one basket. The Arts community was used as an example of a sector that is clearly in the growth stage, as it quickly changes and grows.

Renewal / Growth phases of the adaptive cycle:

- *We're just getting into the very early renewal phase. There are still a lot of people not taking advantage of opportunities (just a handful of youth and retirees are really motivated).*
- *If we focus on sustainability then renewal will always be a part of the town.*
- *I think we're in the growth phase we have lots of flexibility, creativity, and opportunities. Before the G8 we were in 'maintenance' and due to the G8 we were able to avoid a 'release'*

period. Now there is less money to spend so flexibility and creativity will likely be less encouraged – we may head back into ‘maintenance’.

Other perspectives:

- *With the Unity Plan, University of Waterloo, Summit Centre, and people talking about potential ideas, the next 3-5 years will see if we build on momentum or fall back into Maintenance.*
- *There has been a lot of talk about where we’re headed and how we should get there, that sounds like the release phase to me. We are building momentum, forming new partnerships, having discussions, looking at goals and potential answers (e.g. with attainable housing), but we have a long way to go.*

The adaptive cycle helps illustrate critical cycles of change in Huntsville’s past, present, and potential future directions. Figure 11 (next page) describes a possible evolution of the Huntsville social-ecological system through the phases of the adaptive cycle. This image was created based on input from the historical timeline (Chapter 2) and the Think Tank participants.

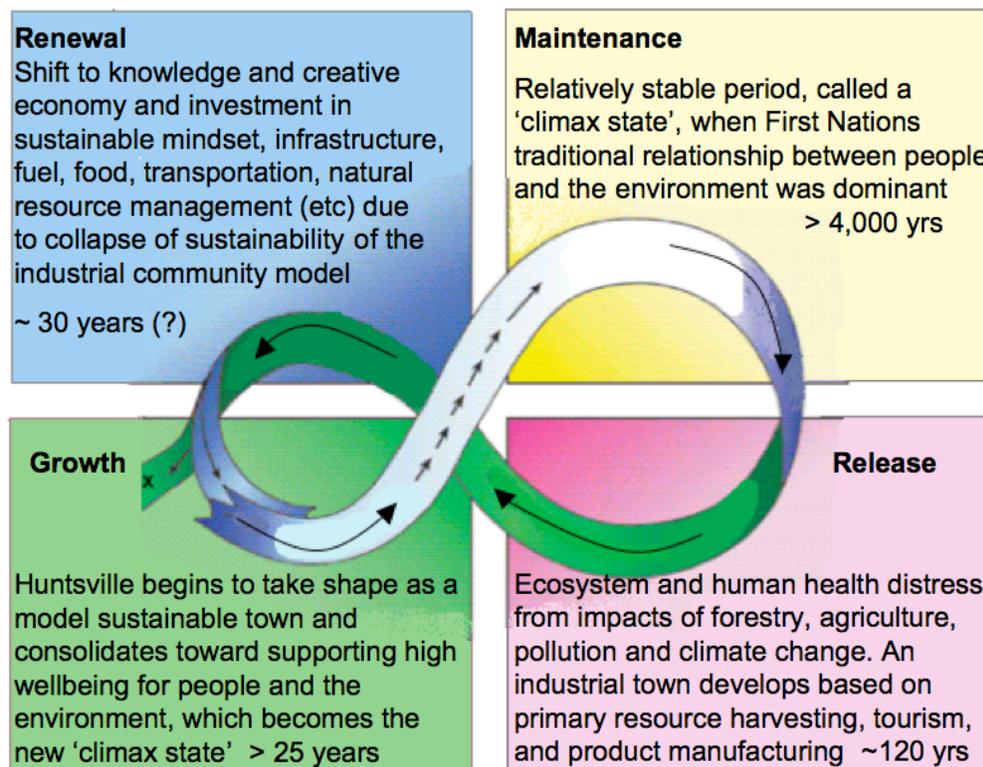


Figure 11 - Simplified illustration of potential stages Huntsville could pass through as it moves from the old Maintenance ‘climax state’ towards a new climax state

Note: Passing from one stage into another does not necessarily mean previous problems are left behind (e.g. climate change, pollution, inequality).

4.3 Strategic management options based on the adaptive cycle

This section introduces management options that take advantage of understanding the adaptive cycle. This discussion is based on an excellent 2009 summary produced by Dr. Francis Westley (University of Waterloo) and Paul Borne (Tamarack Institute for Community Engagement): “*Innovation and sustainable community change: harnessing the power of social innovation*”

Insight from the renewal phase: The renewal phase is a ripe time to invest in and develop new ideas. This phase is defined by availability of resources (e.g. time, money, energy, attention, skills), low connectivity (e.g. groups experiment with new ideas but yet to come together collaboratively), and time pressure since the ‘window of opportunity’ will only last for so long.

During this phase the community and its leaders should expect and support:

- Lots of false starts and sometimes frustration and mounting anxiety about the amount of investment relative to the outcomes
- People who learn by doing thrive in this environment while others may feel increasingly anxious about waste of time or the lack of clear direction
- Experiments and initiatives that lead to little in the way of measurable outcomes

Insight from the growth phase: The growth phase is defined by the demand for delivery and productivity. Common experiences during this phase include:

- Start-up dynamics - e.g. high excitement as an initiative takes form, communication is highly personal, roles are flexible and can easily adjust
- With success and time there is increasing need for organization (e.g. structured communication, control, accounting), job definition, and regulation
- Team-builders and action-oriented people thrive in this environment, while people who are ‘conceptualizers’ may feel uncomfortable

Moving into the maintenance phase: The drive shifts to emphasize standardization of rules and procedures, and meeting demand for services / products. Key characteristics include:

- A time of profitable returns and performance
- Increased demand for productivity, reliance on monitoring, and rewarding efficiency
- Good management prevails and many visionaries move aside or move on

Release - also called “creative destruction” - should be encouraged throughout the cycle: Creative destruction, which means encouraging small-scale disturbance and recovery, helps avoid undesirable pathways. Making creative destruction part of the management routine is critical to maintain resilience and avoid large-scale collapse. Typical characteristics of this phase include:

- Introduction of novelty, increased freedom for invention, creating and retooling ideas and resources
- Great opportunity for change, but potential breakdown of trust, networks, and business plans
- People who thrive on new beginnings enjoy this environment, others are depressed or feel isolated

It is critical to understand and anticipate transitions: The movement from one phase to the next is a difficult passage where many innovations get trapped. This happens because the transition event is unpredictable, requires reconfiguration (usually a messy stage), and resistance to change must be overcome. If an organization, business, policy, or planning innovation gets ‘trapped’ at a transition point and loses resilience it can be very costly and difficult to repair.

4.3.1 Avoiding traps

There are four traps that can destroy resilience and leave a community vulnerable to degradation or even collapse (Patton 2011, Cabaj 2009, Westley et al. 2006):

- **Rigidity trap** - occurs at the transition from maintenance to release if the dominant system resists change, clamps down to maintain the status quo, and does not create conditions for renewal
- **Traction trap** - occurs at the transition from release to renewal if all the action gets locked up in crisis management and leaders struggle to establish a shared vision and direction
- **Poverty trap** - can occur at the transition from renewal to growth if: (1) resources are too scarce to support vibrant exploration, or (2) ideas and resources are abundant but there is no capacity to narrow focus onto a promising idea and move it forward
- **Charisma trap** - occurs at the transition from growth to maintenance if proven strategies struggle to leave the charisma of the 'host', like founding members or funding agencies, which created them

To avoid traps and create conditions for resilient, innovative and collaborative communities, it is essential to recognize that it's healthy to pass through the adaptive cycle and accept there is no "one size fits all" management approach. Expectations and management must be specifically tailored to the unique requirements and different types of performance in each phase (Cabaj 2009):

- Match leadership specifically to the unique demands of each phase of the adaptive cycle
- Different kinds of social connections and relationships to build momentum and resolve conflicts
- New forms of evaluation to monitor 'progress'
- Seeking appropriate external resources and support

Overall, confronting community problems and propelling change requires (Westley 2009):

1. **Courage** - to challenge the status quo
2. **Accepting complexity** - living with the complex nature of society
3. **Relationships** - using the power of existing relationships to learn, access and grow local assets, and respond effectively to opportunities or unwelcome surprises
4. **Learning** - identifying knowledge gaps and learning about potential threats
5. **Balance** - striving for a healthy balance of projects and initiatives in different phases of the adaptive cycle so the community as a whole is continuously renewing and performing

4.3.2 Important connections to larger and smaller scales that impact Huntsville

Having an awareness of key connections between the community and the outside world also offers strategic insight for managing resilience. Identifying and understanding these forces - called **cross-scale interactions** - has important implications for:

- Identifying potential **cascading changes** where change in one part of the system can block or trigger changes at other scales in the system, like the domino-effect
- Knowing what connections strongly impact the community and how each connection could help leverage opportunities or transmit disturbances and hardship
- Understanding large-scale connections and monitoring shifts in the outside world

This broad point of view is essential for a town to develop the awareness needed to be resilient. As stated by a participant, "It's easy to fall from affluence if you don't pay attention to external forces."

Eight prominent connections mentioned most often by the Think Tank:

1. Population growth in the GTA and tourists from this area
2. Muskoka Region and services the District provides
3. Competition with Bracebridge and other nearby towns
4. Impact of the global economy and international trade
5. G8 conference (international leaders and audiences know about Huntsville)
6. Government decisions made at the provincial and federal levels
7. Impact of weather and climate on tourism
8. Internet connection to the outside world and the 'telecommuter' working lifestyle

Other key connections between Huntsville and the outside world include:

Social

- Aging baby-boomer population in Ontario and Canada
- Human disease outbreak (e.g. SARS, flu viruses)
- Immigration
- Links to influential people through our summer seasonal community
- The "live, eat and shop local" movement
- Very poor nations are now aware of rich and wasteful lifestyles in the Western world (through Internet and TV) - this can lead to resentment against the West and against home governments

Environment

- Climate change and how the environment is changing
- Air pollution comes to Muskoka from industrial areas
- District-wide approach needed to protect the environment
- Pests and disease that affect forests (example of devastation in BC pine forests)
- Other communities that are working to become sustainable (e.g. European Union)
- People's connection to water attracts people to Muskoka

Tourism

- Competition for tourists with other locations
- Algonquin Park attracts international tourism
- Similarity to other tourist towns like Collingwood and Parry Sound
- Connection to northern Ontario through our 'northern Ontario spirit'
- Chinese tourism (very large population recently able to travel more freely)
- Large immigrant population in the GTA and how to attract them to Muskoka

Economy

- Value of the U.S. dollar
- U.S. banking and real estate crises
- Cost of oil and the impact of 'peak oil'
- Event tourism (e.g. Winter Youth Games, international triathlons)
- Industries moving to developing countries with cheaper labour
- Potential international shift to a low carbon economy
- Product supply chains (e.g. processing wood from Brazil that is shipped to the U.S.)
- Learning from other small towns with a global research niche (e.g. Wolfeville, NS)

Think Tank quotes:

- *The global economy probably has the biggest impact and there's not much we can do about that as a small community. Losses in Canada's primary resource and automotive areas affect our tourism business (less disposable income to go to the cottage).*
- *Muskoka's existence depends on tourism and our connection to the GTA, specifically retirees and semi-retired people.*
- *Climate change is a global connection that will cause a lot of change (e.g. winter tourism) - Huntsville needs to adapt and do its part. Are we prepared for a low carbon economy?*
- *We need to realize that we are globally intertwined, there's lots of competition. We need to attract bright minds and industries to our community and set up students to be intellectually competitive.*
- *Change needs to happen at higher levels of government too (provincial and federal), for example, to solve affordable housing.*

4.3.3 Protecting general community resilience

When management strategies are selected, it is crucial to consider whether specific actions could negatively impact the general resilience of the overall system. If all the attention and resources are channeled into improving resilience against a particular type of disturbance, management actions may inadvertently reduce system-wide resilience.

Five main features of general resilience:

Diversity - In general, more diversity means greater resilience. Maintaining ecological diversity (e.g. species, habitat types) strengthens the ability of ecosystems to self-repair, while diversity in social and economic systems provides an array of options for coping and responding to change (e.g. diversity of skills, job options, and access to different resources).

Openness - Refers to whether a system is tightly regulated and controlled to increase efficiency. There is no optimal degree of openness and either extreme can reduce resilience (e.g. lack of guidance and structure vs. too much rigid control and efficiency)

Reserves - Reserves are stores of social, financial, economic, human, and natural capital. In general, more reserves mean greater resilience. The trend is often a loss of both social (e.g. local knowledge and collaboration) and ecological reserves (e.g. diversity of habitat and species)

Tightness of feedbacks - There is often a trend towards longer times to respond to warning signals because of more levels of governance and procedural requirements. Effective on-the-ground-monitoring for warning signals and clear communication are essential.

Modularity - Modularity means to have self-reliant but linked sectors rather than one large and fully connected system that could collapse due to one internal failure. Modularity provides flexibility to reorganize and respond in time to avoid a spreading disaster. This feature requires a balance between self-reliance and connectivity to the broader community and outside systems.

Resilience Alliance 2010

4.3.4 Quick guideline for decision-makers and managers

The following questions help guide strategic management decisions (Resilience Alliance 2010). As the Town of Huntsville manages local sustainability and resilience, it will be essential to reflect and return to these questions. Subsequent rounds of the resilience assessment should explore these questions in greater detail.

1. In what ways do larger scales foster change or constrain the community?
2. Are the innovations and learning coming from smaller scales (e.g. community groups, businesses, entrepreneurs, youth) being captured at community-level? If so, how? If not, what needs to be done to take advantage of this innovation and learning?
3. How can opportunities for leveraging cross-scale connections be created to achieve desirable outcomes for Huntsville / Muskoka?
4. Are sectors of the community or the community overall in the maintenance phase? How can new energy enter the system to encourage renewal and avoid turbulent negative changes?
5. How can collaborative efforts, like the Unity Plan implementation teams, stay vibrant and move forward as conditions shift, participants change, and attention wanes?
6. How can critical social and ecological thresholds be better understood? This commitment to learning helps avoid inadvertently crossing undesirable thresholds (potentially triggers **cascading change**) and empowers the community to work towards desirable transformations.
7. Given that there may be completely novel shocks with impacts that are yet unknown, are there parts of the system that show low or declining levels of the general resilience features (p. 50)?
8. Could specific management actions unintentionally erode general resilience?

Eight core recommendations to strengthen resilience - adapted from Walker and Salt 2006

1. Promote and sustain diversity in all forms (ecological, social, economic, institutional)
2. Create linked but self-reliant subsystems rather than one large system that could collapse with one internal failure
3. Focus policy on slow factors associated with trends leading to undesirable change (e.g. steadily increasing consumer debt, proportion of adults without high school education, etc)
4. Be aware of warning signals by frequently completing on-the-ground monitoring reports that warn of danger and allow for timely adjustments and action
5. Take advantage of social capital - promote trust, well-developed social networks, leadership
6. Embrace change and emphasize innovation through learning and experimentation
7. Design governance structures with redundancy, using multiple participants (government, commerce, civil society) and several supporting motivations, strategies, and tools
8. Explicitly recognize all ecosystem services in development proposals and assessments (e.g. water purification and flood protection provided by wetlands)

Next step: This chapter focused on insight gained from the community resilience assessment regarding the adaptive cycle and strategic management options tailored to each phase of the cycle. The next chapter concludes this report by listing key recommendations for acting on the RA.

Chapter Five

Key recommendations for action

Chapter summary: This chapter presents recommendations for acting on the resilience assessment to address the three Main Issues that served as the focus of the RA (based on community input, literature review, and my informed opinion and observations as a researcher).

*To save pace and avoid redundancy, the results gathered during the previous four chapters of the RA are not repeated here. Table 4 directs readers back to main results within chapters 1 - 4.

Table 4 - Directory to main results in chapters 1 - 4

- **Section 1.3** Examination of six community resilience characteristics
- **Section 2.4** Insights gained from the historical timeline (responses to change, recurring disturbances & vulnerabilities, underlying drivers of change)
- **Section 3.2 + 3.3** Scenario exploration input from community stakeholders
- **Section 3.4** Insight gained from scenario exploration (thresholds of concern, potential threats, important assumptions)
- **Section 4.2 + 4.3** Huntsville's location in the adaptive cycle and strategic management options (including "Quick guideline for decision-makers and managers")

5.1 Main Issue 1 - "Grow the creative economy to provide year-round well-paid jobs"

i. Recommendations from Think Tank participants

Attitude

- There's fear of change in the community – people need to learn new elements are needed in town, be ready to look at something new with an open mind, and help it evolve.
- Lack of initiative and pessimism is a serious problem, there has to be some internal drive from people to take advantage of opportunities
- The economy is dependent on the natural environment - apathy and lack of awareness regarding the environment needs to end. Awareness and education are needed
- We need to celebrate success and appreciate what's already in place, e.g. sustainable forestry, ecotourism, local hydro energy generation, and industries being ecologically responsible

Suggested guiding principles for economic development

- Become the centre for the green economy and environmental-technology
- Attract knowledge-based industries that are not so susceptible to the sways of the market and that spin off new ideas and opportunities
- Much slower and controlled economic growth within the limits of what the environment can support
- Be careful what is invited into the town (e.g. huge businesses, low wage factories)
- Businesses must become more collaborative and weave business plans together so we can more effectively look at any impacts down the road
- Communities in Muskoka must work together harmoniously rather than compete against each other and be counterproductive

Specific recommendations to develop knowledge-based industries:

- Introduce a new idea or technology by starting with a small application, then progress toward larger complex applications - this approach greatly reduces fear of change and costs of early problems that often occur with innovation
- Make the transformation to a more creative and knowledge-based economy by promoting socio-cultural aspects, like the Arts, ethnic diversity, aboriginal issues, and cultural awareness
- Accelerate innovation by building on existing strengths, like the existing sustainable forestry practices in Muskoka and Algonquin Park - build on existing businesses and encourage new ones
- Challenge youth to give their “outside the box” vision of a truly innovative future for our community
- Invest in knowledge-based industry, post-secondary institutions, and research, grow the Forbes Hill Research Park
- Develop effective marketing materials
- Assess growing industries that are feasible for this area and promote Huntsville as ‘open for business’ to draw them in
- Ease the path for innovators and entrepreneurs: town staff should work intensively for people with good ideas, mentor small businesses
- Develop and educate the community about natural resource uses and renewable energy production from wood biomass (e.g. pellet plants, alternative fuels, energy production)

iii. Main recommendations from community workshop

- Attract more educational / research institutions and industries (e.g. green technology), maintain high quality of life and market it to attract these companies
- Create an incubator environment that supports creativity and entrepreneurialism
- Tighter bylaws for development and delineate development areas to direct growth (e.g. integrate new housing and business development with public transit routes)

iii. Recommendations from the author

1. To improve local economic self-reliance:

- Livelihood diversification is required that strengthens community resilience
- Economic development should favour local enterprises, increase circulation of dollars within the community, and rely on many small and medium-sized businesses (Douthwaite 1996)
- Ensure that employment does not heavily rely on only a few big employers (Harcourt 2006)

The Unity Plan already emphasizes developing knowledge-based industries that provide meaningful employment and preserve natural resources. To achieve this transformation:

Summary - recommendations for economic development

- Value and encourage creativity and entrepreneurialism, this requires risk-taking valuing experimenting and learning (not immediate success)
- Focus on economic diversification that improves community self-sufficiency
- Address basic skills and skilled trade shortages
- Encourage mentorship and apprentice programs (knowledge-sharing with youth)
- Use social marketing to increase youth interest and awareness about continued learning and career opportunities

- **Huntsville must confront a variety of obstacles:** including an aging workforce, youth out-migration, lack of basic skills, and shortage of skilled trade workers (LTAB 2008)
- **Capacity building and skill development are essential:** recent investment in physical infrastructure and technology will return large dividends by growing local abilities (e.g. telecommunications, education facilities) (LTAB 2008). Protecting and building capacity (e.g. human, financial, physical, social, cultural, natural resources) is essential for the community to meet changing needs and take advantage of new opportunities (Puntenney 2000).

2. Strengthen local ‘culture’ that supports innovation and ongoing learning:

Learning and innovation are the fuel of entrepreneurialism and help drive the community’s transition towards a desirable future (Kemp et al. 2005). Learning includes formal education, informal education (e.g. being well informed, traditional knowledge), and learning based on experience - all require sharp skills in critical thinking and reflection. Creating and spreading appreciation and desire to uphold a ‘learning culture’ throughout the population will be a cornerstone of success for the Unity Plan.

Effectively marketing higher education opportunities: It is clearly hoped that the post-secondary education facilities in Huntsville and the wider Muskoka area will create and attract employment and more opportunities for local youth. Though the presence of these institutions alone will stir up interest for some individuals, effectively marketing higher education and career advancement opportunities to youth, underemployed and unemployed, and the general public should be a high-priority initiative (Kotler and Lee 2008).

3. Regional economic development:

Regional cooperation is an essential characteristic of long-term sustainability (Newman et al. 2007). Growing urban centers cannot exist without the surrounding region they depend on for food, fiber, recreation and ecological services (Newman and Jennings 2008). The Unity Plan recognizes the need for regional focus on economic development to help generate year-round sustainable jobs. It is not clear what level of cooperation and collaboration would be committed to a regional effort.

- Would the Town come to the ‘regional table’ only when it strongly serves Huntsville’s interests or would there be commitment to bettering the overall region (e.g. facilitating economic development of smaller communities)?

A Regional sustainability strategy could address more powerful issues, such as waste collection, water recycling, high efficiency transit, lobbying as a louder collective voice for funding. Infrastructure, like roads and buildings (etc), strongly influences community health and long-term economic prospects (MAH 2009). Region-wide solutions for issues of energy, water, waste and food production are required, since individualized approaches may not be equitable (Newman et al. 2007).

5.2 Main Issue 2 - “Land-use planning that protects the environment”

i. Recommendations from Think Tank participants

Community planning

- Unity Plan needs standards and targets that must be met rather than just guidelines and encouragement
- Think big! - e.g. green buildings, reduce carbon footprints, energy efficiency

- Leap-frog rather than imitate other towns. We should be a leader, a beacon, and a model sustainable town for others
- Use 'ecological accounting' to understand the monetary value of services the environment provides (e.g. removing air pollution, purifying air water)
- Improve availability and access to parks and natural areas
- Encourage use of renewable energy
- Address climate change mitigation and adaptation

How Huntsville should grow

- Sustainability must be the filter that proposals pass through in order to be approved
- Environmental integrity should be the first priority when considering any development
- Be careful with Official Plan zoning - once commercial zoning is in place we can't tell big box stores they can't come here (it's illegal)

Specific land-use planning considerations

- Grow incrementally by understanding how much growth we can afford, how quickly it should happen, and where it should go
- Growth should happen in urban areas, avoid development in rural and waterfronts areas
- Encourage development on poor agricultural land rather than farm land or forested areas
- Population growth should be spread out rather than crowding into one big center
- Land-use planning should protect shorelines from complete development
- Development should be focused down Highway 60 to take advantage of traffic headed to Algonquin Park
- Develop an environmentally sound transportation corridor for walking and biking, including safe bike lanes on new roads and expanded public transit - especially in the summer

Specific recommendations to protect the environment

- No net loss of wetlands permitted within Huntsville
- Preserve remaining natural shorelines and buy-back shoreline property
- Consider pressure of recreation on lakes and manage forests sustainability
- Develop / promote programs to enhance urban tree cover and rural sustainable forestry
- Protect the acoustic environment to preserve tranquility (locate busy roads away from lakes)
- Huntsville should be 'pesticide-free' like many other towns to protect the water supply
- Clean up polluted areas on the waterfront
- More talk about climate change in the community (e.g. impacts and alternatives)
- Educate society about natural resource use and alternate fuels
- Awareness and education are needed to end apathy regarding the environment
- Reach out to opponents and encourage them to share their concerns, listen and reassure them, and treat them with diplomacy. Do not bulldoze, you need their buy-in

Higher scales

- Government funding for MNR enforcement officers to protect the environment
- Have a broad vision beyond Huntsville – sustainability requires helping developing nations

ii. Main recommendations from community workshop

- Introduce stronger environmental protection, stricter rules, and increase stewardship
- Invest in convenient and efficient transit, safe and scenic walking / biking, and community education so the public is aware of and voluntarily chooses these options

ii. Recommendations from the author

1. Define the UP model of sustainability: The UP does not clearly define what it means by striving to “balance” social, economic, and environmental concerns. Three models that could be used (among others) - each carries its own assumptions and implications for community development.

- a) **Holistic model** - envisions all three sectors as highly integrated and interdependent. Sustainability is only possible and offers the most benefits when actions mutually benefit all three sectors (Gibson et al. 2005).
- b) **Egg-of-wellbeing model** - depicts society as nested within and entirely dependent on the natural environment, like a yolk within an egg. Society’s wellbeing depends on protecting and nurturing the natural environment as the first priority (can also be the case in the first model) (Guijt et al. 2001).
- c) **Overlapping-but-separate model** - believes all three sectors are connected to some extent but can be managed separately. Sustainability occurs when negative and positive impacts within and across sectors are successfully balanced - many sustainability researchers and practitioners refute this model (Gibson et al. 2005).

2. Define the terms of ‘acceptable’ environmental protection for development proposals: To be consistent in the evaluation of development proposals, the Town must define what degree of ‘environmental protection’ is considered acceptable. For example, goals set elsewhere include:

- **Agreeing to mitigate negative environmental impacts** (e.g. by donating to an environmental stewardship foundation or investing in habitat restoration elsewhere in the region) or **minimizing** negative environmental impacts (e.g. through site plan control)
- **Causing no net harm to the environment** (e.g. site forest clearing offset by shoreline restoration)
- **Net benefit to the environment** (e.g. development results in enhancement to ecological systems due to green building design, renewal energy generation, habitat creation / restoration, etc).

Summary - recommendations to improve environmental management

- Clearly state what model of sustainability Huntsville is employing
- Society and the environment are intricately linked - avoid negative tradeoffs to the environment
- Strive to mutually benefit the economy, environment, society
- Support long-term wellbeing over short-term financial gain
- Use adaptive management to continually learn and adjust tactics based on experience
- Accept and plan for uncertainty and change
- Management and policies that are flexible, closely monitored and watch for warning signs are better equipped to respond to stress and surprise

Many authors stress the need for development that provides *net benefit* to ecological systems (Walker and Salt 2006, Gibson et al. 2005, Homer-Dixon 2006). Clearly state what goal will be used to evaluate development proposals (this could be amended into Unity Plan goal #1 or #5).

3. Use an adaptive management approach: Many studies on enhancing the resilience of social-ecological systems stress the importance of using an **adaptive management (AM)** approach (Adger et al. 2005, Folke et al. 2002). The hallmark of AM is its commitment to continually learning:

- Management tactics are highly flexible and open to adjustment depending on evaluation of progress, new opportunities, and perceived threats
- Uncertainties are identified and strategic experiments are used to learn about the system, such as how different development options impact nearby ecosystems
- Planning tools and policies ‘learn’ by adjusting management tactics based on experience
- Feedback from the management policy and from monitoring the resource (e.g. a lake ecosystem), contribute to each others evolution and mutual improvement
- Nurtures flexibility, sources of renewal, and the ability to respond to stress and surprise

Adaptive management versus typical management approaches:

Conventional natural resource management generally uses available knowledge to generate a 'best guess' management strategy, which is changed as new information modifies the best guess. Whereas the AM approach promotes aggressive and strategic experimenting to learn on the leading edge, watch for warning signals, and quickly adapt both practices and policy (Berkes et al. 2003).

5.3 Main Issue 3 “Municipal leadership committed to sustainability and community engagement”

i. Recommendations from Think Tank participants

Community engagement recommendations:

- Provide more opportunities and seek out community involvement. There must be broad buy-in and an engaged excited community in order for sustainability to last
- Strengthen leadership by being open and transparent, but go beyond appearing to listen and respond to what is heard - these qualities empower citizen involvement
- Public consultation is important and has its place, but we must be careful not to stagnate progress with excessive process. Consultation opportunities must be provided but should be limited
- Leaders should provide a statement defining their vision for Huntsville’s next 25 years and their definition of true leadership
- It is not possible to consult on every matter and no idea or leader will be popular with all, leaders should work hard at collecting broad input and seeking consensus on strategies

Barriers to community engagement that must be addressed:

- Time is the biggest speed bump - maximize use of people’s time, use online options for meetings so people can join from home (e.g. “Skype” online video conferencing, moderated internet blogs)
- Waning public interest due to delay implementing the UP caused by Town Council change-over
- Under-representation by disadvantaged groups in society (e.g. families living in poverty, parents with several jobs) that will be impacted by management decisions but get no say in the matter
- Clear communication to ensure all understand the vision and how to remain / become involved
- Feeling like meetings and projects will have minimal impact

- The Unity Plan is another plan in a series of plans and can easily get lost... in order to implement the UP there needs to be engagement and explaining what it is about
- Connecting with youth and making sure they are excited about the Unity Plan
- Self-interests trumping the greater good of the community

Commitment to sustainability recommendations:

- Create a vision for the next 25 years as a common goal through broad input from the community
- Council and municipal operations must embrace sustainability, which must become *the* overarching vision that guides everything done in the town. Sustainability must be the filter that decisions must pass through in order to be approved
- Sustainability needs to always be considered and become a natural routine process
- Improve the capability of people to actually make change happen, currently only a handful have this ability
- Get younger people involved in town council (e.g. high school students providing input)
- Council and staff should be assessed based on how much they advance the Unity Plan

ii. Main recommendations from community workshop

- Get full community and council buy-in on the Unity Plan, which must have strong and enforced rules, take small steps immediately to demonstrate commitment and progress
- Lead by example, bring in new ideas, seek diverse public input, break down social barriers to participating
- Advance social goals that help create happy and proud citizens, attract young people, and integrate newcomers (e.g. cultural planning)
- Make “ground-up” community-based decision-making the priority rather than “top-down” approach
- Focus on improving clear communication between government and public
- Demonstrate and spread information-sharing - e.g. between government, public, District, and other communities but also opportunities between businesses and sectors

iii. Recommendations from the author

1. Gaining buy-in for the Unity Plan: Five qualities that help gather broad public support (Gamble 2010):

- ***Emphasize utility, trust and fairness of the UP:*** communicate that individuals can make a dent in complex issues and consistently demonstrate commitment (e.g. through actions of leaders).
- ***Use the power of ‘Unusual Suspects’:*** gaining the support of a few influential people can open the door to their peer group (e.g. utilize social marketing, McKenzie-Mohr 2008).

Summary - recommendations for leadership and community engagement

- Empower citizens to influence decision-making
- Improve consultation efforts so the public is encouraged and capable of asking questions and contributing
- Identify and address barriers to participation
- Value marginalized / disadvantaged groups and avoid negative tradeoffs to these groups
- Continually improve transparency and accountability
- Improve awareness of and buy-in for sustainability and the Unity Plan, this begins with all Town Council and staff

- **Invest in reaching hard-to-reach and marginalized audiences:** i.e. single parents, minority groups, small business owners, priority neighbourhoods, certain age groups (etc). Use separate meetings catered to each target group.
- **Emphasize building assets not hopelessness:** empower community strengths rather than focusing on deficits.
- **Embrace a long-term process of learning and change** rather than solely focusing on a “grocery list” of specific interventions.
- **Keep people at the table:** once people have agreed to listen or join a discussion, the next step is to enable generative collaboration that can spawn novel solutions. Key elements that help sustain involvement are transparency (e.g. regarding decision-making processes, sharing knowledge and power) and an explicit commitment to flexibility and experimentation.

2. Barriers to participation: A key issue going forward is to engage vulnerable and disadvantaged groups in a sincere and meaningful way.

- **Barriers that prevent or discourage involvement include:** lack of transportation, child-care, timing and location of meetings
- **Barriers to engagement are not always visible:** power dynamics (whether real or perceived), can result in people thinking, “no one will listen anyways”. This can impact participation by youth, seniors, gender, socioeconomic status, race, and disability (etc). Stigma or reputations attached to certain groups can also greatly hinder collaboration, e.g. labeling ‘newcomers’, ‘irresponsible and poorly informed people’, ‘corporate sell-outs’, ‘tree huggers’, and so on.
- **Style and pace of outreach forums are key considerations:** well-intended efforts that are too crowded with not enough time and don’t provide a variety of ways to contribute can quickly frustrate the public’s ability to contribute and ask questions. There is no ‘universal best practice’ - the most appropriate tools for community engagement vary depending on the target audience.

3. Tools for meaningful community engagement: There are a wide variety of methods for gaining public support - the Tamarack Institute for Community Engagement provides an excellent collection of resources on its website: <http://tamarackcommunity.ca/>. Three promising tools that go beyond conventional meetings and workshops are:

- **Neighbourhood Meetings:** bring the meeting location and peer pressure to participate closer to home (e.g. performed in a school gymnasium, church, or community hall).
- **Speak Outs:** an informal drop-in format to engage regular people and provide reliable information about community views and perceptions. A ‘Speak Out’ is set up like a small ‘career fair’ with a variety of trained volunteers and booths sharing information about the project. The display is available all day and evening for a designated number of days. The public is free to attend at their convenience and can contribute in a variety of ways (e.g. interview, voting box, write comments, discussion groups). All comments are visibly posted for others to read and respond to. The power of this format is that it discourages ‘squeaky

wheels' from dominating the spotlight and encourages all who have time to speak their mind (Sarkissian and Bunjamin-Mau 2009).

- **Community participation audit:** Performing and posting the results of a participation audit can build trust in the formal leadership, process, and progress of the Unity Plan. The non-profit organization "Tamarack Institute for Community Engagement" evaluated a variety of community engagement processes (Gamble 2010, Whaley and Weaver 2010). Burns and Taylor's (2000) "Auditing community participation" handbook provides a 7-step question-and-answer evaluation.

5.4 Need for public education and attitude change

The need to cultivate local attitudes that support change and sustainability came up again and again in both the workshop and Think Tank conversations. This is a key challenge that Huntsville must face to propel the Unity Plan and the sustainability movement. It is clear that improved public awareness and education are required. Different approaches are required to engage different people and - even then - understanding an issue does not mean attitudes and behaviour will change automatically (McKenzie-Mohr and Smith 2008).

The Think Tank participants were asked to identify one negative attitude or behaviour that must change to kick-start Huntsville's journey to become a sustainable town. Each person was guided through an "Outcome Mapping" exercise (Earl et al. 2001) to identify a final outcome, a halfway target, and strategies to facilitate the desired change for a specific audience.

The Think Tank's responses covered the following topics:

- Changing attitudes to value and care for others and the natural environment
- Seeking higher achievement and quality in formal education
- Getting involved in the community and interested / informed about local issues
- Using sustainable transportation options (e.g. public transit, avoiding unnecessary driving)
- Changing wasteful habits (e.g. to conserve water);
- Accepting urban design (e.g. taller buildings that fit the landscape, reduced carbon footprints)
- Being receptive to economic growth and diversification

A summary of the Think Tank's responses regarding specific interventions and ideas to facilitate desired attitude and behaviour changes is provided in Appendix 1.

5.5 Indicators the community is progressing in a desirable direction

There is no universal set of indicators to monitor 'community resilience'. Community resilience cannot be directly observed since it's a dynamic process fed by many factors (e.g. social, environmental, and economic). Indicators are used to monitor resilience on an ongoing basis and provide a warning signal if a tipping point or threshold is being approached. It is quite difficult to identify a threshold except during or after it has been crossed. Research is ongoing regarding how indicators should be selected and which indicators are most useful:

- Indicators should be forward-looking, appropriate for the local context, occur in multiples or clusters that reinforce one another and allow repeated measurement (Carpenter et al. 2005)
- Individual well-being, capabilities, and access to assets are several indirect measurements of livelihood resilience (Marshke and Berkes 2006, Deb et al. 2002, Scoones 1998)

A cautionary note: Selection of indicators is subjective and favours things that can be easily quantified. Monitoring indicators can be a useful process, however there is a great deal that cannot be conveniently measured and is not accounted for. Numbers can also be used (or grasped for) to give a sense of firmness in a world that is in fact highly complex and uncertain.

The proper role of indicators is to illuminate the current situation and successes, identify areas requiring intervention, reveal connections and roots of problems, help identify alternatives and monitor results of changes. The latter includes reporting and learning from success, incomplete success, mistakes, and failures. The only literal failure is the failure to learn (Westley et al. 2008).

Potential indicators

The “short-term stepping stones” identified by community stakeholders in Chapter 3 provide one set of potential progress indicators (e.g. document actions and outcomes). I have suggested a few other potential indicators to monitor whether Huntsville is progressing in a desirable direction below.

Main Issue 1 - Growing the creative economy:

- Evidence of concrete support for creativity and entrepreneurialism (e.g. provision of small loans for business start-up or expansion, staff and programs available for small business mentoring)
- Continued education programs and enrollment (e.g. basic skills, skilled trades, added skills or certification, higher education - e.g. diploma, bachelor, graduate degrees), measured level of student satisfaction and outcomes
- Incentives for employers to hire young people (e.g. cooperative education, internships)
- Research poll confirms marketing strategies are effectively engaging desired businesses outside Huntsville to consider relocation or establishing a branch, and existing businesses in Huntsville to consider internal opportunities for diversification

Main Issue 2 - Land-use planning to protect the environment:

- Degree of urban densification (e.g. infill and up-fill development, redevelopment)
- Number and extent of new developments outside the Town’s designated urban settlement area
- Number of developments that achieved “net-benefit” to the environment or “no net loss” to the environment (e.g. site development improved or maintained habitat quality and function)
- Number and severity of developments that resulted in “net loss” to the environment (e.g. site development caused environmental degradation that was not offset within a given time period)
- Measures of environmental quality (e.g. forest cover, water quality, biodiversity)
- Evidence of adaptive management techniques - e.g. experiments to improve understanding of a target ecosystem or alternative site development features (e.g. enhanced stormwater management ponds, permeable pavement, alternative “eco” building materials); documentation of monitoring, evaluation, learning, and adjustment
- Use of Planning Act tools to direct sustainable development (e.g. height and density standards, subdivision review for sustainability characteristics, development conditions applied to properties adjacent to environmentally sensitive areas) (e.g. MAH 2009)
- Number of enforced by-law infractions related to environmental protection
- Documented voluntary landowner stewardship (e.g. restoration projects and outcomes), research poll confirms marketing strategies effectively encourage stewardship

Main Issue 3 - Leadership committed to sustainability and community engagement

- Evidence of expanding voluntary community involvement (effort on the part of the individual or group) and leadership seeking community input (Council actively seeks community involvement)
- Strengthening existing partnerships and developing new partnerships
- Evidence of improved community awareness and support for the Unity Plan (e.g. # directly involved in implementation, # signed-up for volunteer activities, research poll regarding perceptions and attitudes towards the UP)
- Achieving assigned 'quotas' for engagement with target community sectors (e.g. marginalized or disadvantaged groups and others not typically heard during standard consultation events)

5.6 Conclusion

The Huntsville Resilience Assessment has provided the community and Town Council with:

- Insight regarding current 'baseline conditions' for key sources of community resilience
- Strategic management options
- Recommendations to address three high priority issues in the Unity Plan

This was achieved by engaging 68 community stakeholders in sharing their knowledge, experiences, and ideas about Huntsville's current situation and future. A variety of 'community engagement' exercises were used to help people with diverse backgrounds participate in critical and creative thinking, reflection, and dialogue. I also offered my expertise, as a graduate student specializing in sustainable development and community engagement processes.

Since communities are complex and unpredictable, there is no recipe to usher a town into an 'optimal' sustainable state. The resilience-based approach to sustainability planning provides a holistic point of view that emphasizes proactive and long-term thinking, and aggressive learning and adaptation. By accepting change and uncertainty, the community is better equipped to grow sources of resilience and provide a good quality of life for today's generations and future generations.

What next?

It is hoped the Town Council, Unity Plan Committee, and Unity Plan Implementation Teams will consider the results and recommendations within this report for inclusion in their management decisions. The Huntsville Resilience Assessment also offers relevant insight for community organizations and individuals seeking to improve their community.

The resilience assessment is meant to be an ongoing process that engages many diverse community stakeholders in periodically evaluating the progress of the community and the Unity Plan. This evaluation tool can help Huntsville implement, monitor, and spur evolution of the Unity Plan by:

- Supporting learning from failure / less than complete success as a meaningful outcome and reporting on learning as a form of authentic and meaningful accountability
- Using diverse and critical perspectives to examine assumptions, test progress, reaffirm its vision, and continue tenaciously adapting to day-to-day realities

Results yet to come from this research project: Huntsville stands to further benefit from my thesis report (completed November 2011), which examines the effectiveness of the Huntsville Resilience Assessment and seeks to further improve the resilience assessment process.

Glossary

Adaptive cycle describes the complex and dynamic phases that a **social-ecological system**, such as a community, passes through as it changes over time: release, renewal, growth, and maintenance.

Adaptive management (AM): is a management approach that emphasizes commitment to continually learning and adjusting based on experience, open and flexible management tactics, uses experiments to learn more about the system, expects planning tools and policies to be changed based on monitoring feedback.

Alternate state: too much change can degrade resilience and push a system across a tipping point and into an alternate state that supports a different set of conditions that influence human wellbeing and the health of the environment.

Cascading change occurs when a disturbance at one level directly or indirectly triggers change in another level and so on, like the domino effect.

Community stakeholders are people who live in or are connected to Huntsville, including: permanent or seasonal residents, businesses, organizations, and tourists.

Cross-scale interactions refer to connections within and outside the community that influence what does or doesn't happen in the community.

Disturbance can be a sudden unexpected event (e.g. a flood, new technology, political shift, economic downturn) or it can be prolonged stress (e.g. slowly growing population, etc).

Feedback effect means that renewal or downturn at one scale can impact what happens at other scale. Communities are influenced by what happens at higher scales (e.g. the region, province, nation, international) and by its own inner systems (e.g. community organizations, businesses, leadership, etc). The feedback effect can encourage or block change from spreading across scales.

Resilience is the ability to cope with and learn from adversity, adapt and be changed yet retain basic structure and ways of functioning. Resilience forms the foundation of a sustainable town.

Resilience approach to sustainability requires proactive thinking and constant adaptation based on experience; accepting change and uncertainty; continual learning, recovery, and flexibility; and acknowledges limits to growth and efficiency.

Resilience assessment (RA) is essentially a check-up on how well a community nurtures its ability to cope with and adapt to stress and unexpected change. The RA creates a snapshot of the community's current situation and highlights interventions that can protect or boost resilience to help shape a prosperous and sustainable future.

Resilience characteristics (RC) have proven to be highly predictive in assessing resilience and are examined to create a portrait of Huntsville's current situation.

Social-ecological system (SES) is a term used to refer to social systems where people live and operate that are linked with and dependent on ecological systems. A community is considered one type a social-ecological system.

Sustainability means to provide wellbeing and opportunities for improvement to current generations without degrading the opportunities of future generations.

Threshold is another word for the 'tipping point' that separates different **alternate states**.

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APPENDIX 1

1. Project participants demographic characteristics

Demographic characteristics: Think Tank

Sharing personal information was voluntary - the number of participants who decided not to provide information for a given characteristic is listed as the last category.

- **Resident type:** 18 permanent residents and 1 seasonal resident of Huntsville, 2 permanent residents and 1 seasonal resident from other Muskoka communities
- **Duration as a Muskoka community member:** 6-10 yrs (8 people), 31-50 yrs (5 people), 11-20 yrs and 21-30 yrs (3 people each), more than 50 yrs (2 people), less than five years (1 person)
- **Occupation type:** Public 10, Private 8, Self-employed 3, Charitable 1
- **Highest education:** University bachelor degree / College 10, High school 4, Masters 6, Doctoral 2
- **Age:** eleven people were 50-69 yrs old, five people were 40-49 yrs old, four people were 30-39 yrs old, two people were 70-89 yrs old, no one was under the age of 30.
- **Primary personal interest:** Mixture of environment-social-economic 10, mixture of economic-environment 3, mixture of social-economic 3, environment 3, mixture of social-environment 1, social 1, economic 1

Demographic characteristics: Community Workshop

- **Resident type:** all volunteers and participants were permanent residents of Huntsville
- **Occupation type:** Retired 16, Private 15, Public 8, Self-employed 2, Charitable 1, Religious 1, Did not list occupation 4
- **Highest education:** University bachelor degree / College 26, High school 6, Masters 5, Doctoral 2, Did not list education 4
- **Age:** 32 people were 50-69 yrs old, ten people were 30-39 yrs old, five people were 70-89 yrs old, no one attended that was under the age of 30.
- **Primary personal interest:** Mixture of environment-social-economic 9, environment 9, economic 3, social 2, mixture social-economic 2, mixture social-environment 1, did not list interest 21

2. Pictures that illustrate the carefully designed visual layout of websites used for the online group discussions held with the “Think Tank” to help complete the HRA

i. Website created for the first online discussion (only shows the “home page”)

THE HUNTSVILLE RESILIENCE PROJECT
BUILDING THE FOUNDATION OF A CUTTING-EDGE SUSTAINABLE COMMUNITY

Search...

University of Waterloo
AUGUST 9, 2010 1

Welcome! Please read instructions
Thanks so much for joining this online discussion for my...

1. Community Strength
AUGUST 9, 2010 12
Looking at the strength of the community can provide great...

2. Leadership
AUGUST 9, 2010 11
Good leadership and decision-making from both the community and the...

3. Resilience
AUGUST 9, 2010 10
A sustainable town must be resilient in order to last...

Recent Comments

4. Innovation
AUGUST 9, 2010 11
A sustainable and thus resilient community must foster creativity and...

5. Cycles of Change
AUGUST 9, 2010 5
Being a resilient community is a dynamic process because the...

6. High Priority Issues
AUGUST 9, 2010 5
What are the top-three high priority problems that need to...

7. Getting to the Root of the Problem
AUGUST 9, 2010 7
The 'root causes' of tough problems the town must face...

8. Connections That Matter
AUGUST 9, 2010 5
As one participant said, "It's easy to fall from affluence..."

9. Future Scenarios
AUGUST 9, 2010 9
Thinking about Huntsville's future 25 years from now gets us...

10. Action Strategies
AUGUST 9, 2010 26
Many specific action strategies were suggested to help kick start...

ii. Website created for the second online discussion (only shows the “home page”)

The screenshot shows the homepage of the website huntsvillechangechallenge.com. The site has a dark red header with the title and a tagline: "Grand Finale – taking action to help Huntsville become a sustainable town". Navigation links include "Home", "Grand Finale Question", and "The Side Dish: Sharing Ideas". There is an RSS feed icon for "Comments RSS".

The main content area is titled "Welcome to the Grand Finale!" and includes an "Edit This" button. The text reads:

This website will be open from **Monday morning November 1 until Sunday evening November 7 (closes at 11:30 pm)**. Log on and share your thoughts anytime!

Thank you for helping me wrap-up this check-up on Huntsville's resilience and innovation as part of my Master's research at the University of Waterloo. The whole point of this project is to help improve Huntsville's sustainability plan, called the "Unity Plan", and encourage people to take action! We have covered a lot of ground since we first met back in the warm days of summer. All together this group (nick-named the "Think Tank") has talked about:

- Huntsville's current challenges and triumphs along with lessons from the past
- What Huntsville's future could look like
- Short-term stepping stones that need to be put in place to shape a bright future
- The results of this project's community workshop
- Brainstorming how to encourage people to take action to help Huntsville become a sustainable town

Through all our conversations, one thing has become quite clear: a sustainable town depends on individual people stepping up to take action and make change happen! All levels of government have an important role, but you've told me loud and clear that there must be a groundswell of 'grassroot' action and leadership from the community. During the last interview, we talked about how to encourage people to support positive change and get involved in the community... this is the final frontier for this project and I'd love to get your input to help me explore this nagging loose end. Which leads to...

The purpose of this online discussion: I'm interested in *how* to encourage people to take the leap and get involved in local sustainability projects. With this in mind, I'd appreciate your input to help me understand your thoughts on getting involved with the

On the right side of the page, there is a section titled "Recent Comments" which is currently empty.

3. Twelve future scenarios created by the Think Tank

The most common positive future scenarios:

- **#1 Most popular: “Stay the same + opportunities and greener”** - Similar size, small-town feel, retain youth, everyone has opportunities for good employment and can live in dignity, environment in great shape or improved from today
- **“Careful growth”** – Urban densification or growth of several rural ‘hubs’, all ages and families attracted to high quality of life
- **“The Green research and Youth magnet”** - Growth still careful but focus is on attracting environmental research, good livelihoods, and youth

Others positive future scenarios:

- **“Shining star on the tourist map”** – Huntsville becomes the best community for year-round sustainable tourism
- **“Self-sufficient Huntsville”** – High cost of oil means tourists and goods won’t be able to come from afar, community becomes more self-sufficient with more traditional lifestyles

The most common negative future scenarios:

- **#1 Most Common: “Another Big Barrie”** – Clear-cut forests, polluted lakes, lost small-town feel, large buildings, urban sprawl, difficult to keep youth, lower quality of life
- **“Another Elliot Lake”** – Town almost entirely retirees and service industries, no youth, town fails to create or seize opportunities
- **“Complacent-ville”** – Rest on our laurels and just react to crisis, town doesn’t reach its potential

Other negative future scenarios:

- **“Tourist-ville”** - Town too reliant on tourism and takes a nose dive with every turn in the economy, poor livelihoods
- **“Another bedroom community”** – Service-hub for people working in Toronto and travelers, poor paying jobs, no roots in the community
- **“Not prepared for climate change”** – Climate change impacts jobs, scenic beauty, infrastructure, safety, lifestyles, and youth’s hopes are dashed
- **“Not able to care for each other”** – Economy suffers, town is devastated, not able to look after the most needy

4. Posters used to illustrate three future scenarios examined at the community workshop

Scenario A

“Stay the same + opportunities & greener”



- Town is similar size with small town feel, vibrant downtown & dense urban area



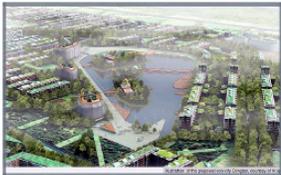
- Able to retain youth thanks to good employment and quality of life



- Development not at expense of environment, which would be in even better shape than today

Scenario B

“Careful growth + magnet for green research & youth”



- Several rural hubs to live-work-play or one expanded urban centre

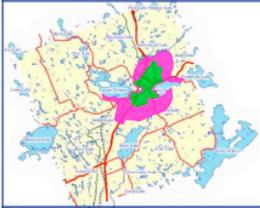


- Families and professionals attracted to high quality of life and good jobs

- Focus on environmental research (e.g. renewable energy) that spins off other industries with good jobs

Scenario C

“Big-like-Barrie + environmental destruction”



➤ Urban sprawl, clear-cut forests, polluted lakes

➤ Lost small-town feel and character, “bedroom community” for T.O.

➤ Poor paying jobs in tourism and service industries

➤ Lower quality of life makes it hard to retain youth, many seniors and ‘commuters’

5. Strategies created by Think Tank participants to encourage behaviour & attitude changes

Attitude shifts

Desired outcome: People develop and support the ‘me to we’ attitude, e.g. have a more collective attitude and care for others even when reaching outside your comfort zone

- Life changing experiences can help develop this attitude, e.g. sending high school students to do volunteer work in poor countries where they get to interact with other kids.
- Support ‘committed champions’ that want to change things and get things done. Once people see change happening, thanks to the first pilot project, others will flock in to make the change too without resistance or needing convincing
- It is really empowering when a leader cares - ask people to share (and listen to) what they’re proud of along with unsolved problems you may be able to help with. When people feel good they’ll go find something else to improve.
- This attitude starts with the mayor - people won’t feel as motivated if the leader isn’t.

Desired outcome: Attitude change to value and respect what we have as a community

- The community has to respect itself to attract people that share the same feeling. This attitude change needs to spread through the whole town
- To encourage this change, industries need to start talking to each other and the Town needs to allow the public to participate, which gives people a sense of worth. We need opportunities for people to come together and share, even through sports or social media!

Desired outcome: Develop the ‘living within your means’ attitude and acknowledge that we’re fully part of nature

- People need to start talking about ecological limits and their own ecological footprints
- Local products / food should be available, sought after, and have supporting policies
- Set a firm urban boundary
- The mayor would take the lead and recognize that these changes will help Huntsville to stand out and provide an advantage for tourism and the economy
- Develop a ‘Natural Heritage Strategy’ that identifies key natural features, existing habitat connections, and habitat restoration needs
- Educate youth so they bring this understanding home and spread it to their parents

Desired outcome: The people of Muskoka develop a ‘sustainability ethic’ that understands the need for change in order to sustain a decent lifestyle for themselves and future generations

- There must be willingness from a large cross-section of Muskoka’s communities to become engaged in sustainable community activities, including youth, seniors, business and industry, service clubs, churches, and elected representatives.
- Begin with a small group of keen community members, who also have the potential

to provide leadership and encourage participation by others, in the development and implementation of sustainability action plans.

- Setting achievable goals that lead to early success is key to building momentum

Education

Desired outcome: Our kids would look forward to and strive for post-secondary education

- Prepare the pathway for post-secondary education, have mandatory core skill classes (math, English, etc), hold students back if necessary skills are not met
- Prepare students for the real world by not over-protecting their self-esteem so they learn that failure is ok and keep getting back on the horse
- Establish local scholarships to support post-secondary education
- People leading this change would include municipal leaders, parent councils, and teachers of ‘yester year’.

Desired outcome: The culture of the town needs to shift to value pursuing formal higher education

- This change is needed to increase awareness throughout much of the population. People would be better able to participate in democracy in a meaningful way.
- Establish higher education facilities in town or nearby (e.g. leading edge university, college campus) along with community colleges and trade schools
- Our leaders have to encourage this shift to an education culture.

Community awareness and involvement

Desired outcome: Residents would have high awareness about their community’s needs and be involved in caring for others

- Have an ongoing program at town council meetings to share where / when volunteers are needed and give recognition to people for their efforts
- Being aware of and helping those on hard times must be 100% supported by the council and mayor. People need to see them serving people at the food bank.
- Locals and cottagers would actively seek to help everyone feel loved and like they belong, all would be prepared to volunteer
- Good leadership is needed along with passionate people who are willing to step out and make change. These people need opportunities to do the ‘barn raising’ they are capable of. Don’t hinder their progress or make them jump through too many hoops.
- The new Debbi Travis show had some great ideas, e.g. educating locals and cottagers, and getting hype going to gather a crowd.

Desired outcome: Community groups would work productively in collaboration towards a common goal

- Define a common goal with lots of buy-in from people that encourages information sharing between groups / sectors
- The Town would be a ‘facilitator’ to bring people together but the community would be the ‘doer’ that gets things done
- Use the Unity Plan to help different parts of the community work together

Desired outcome: Develop a stronger sense of cooperation and camaraderie within Huntsville and the District of Muskoka. Rivalry among municipalities is a serious barrier to moving forward

- This change requires a forward-looking attitude and willingness to take risks and spend money to plan for the future. Use successful short-term projects to get this change going.
- People that will help to advance this change are: school children and educators, faith groups, and community service organizations.

Desired outcome: More public involvement to become a sustainable community

- If you involve and encourage people they'll come out of the woodwork! Give credit to those that participate.
- Bite off small portions so you can show progress early, even after just one year to keep people motivated to achieve the vision
- This change needs to start with community working groups picking actions to implement during the next few years for the Unity Plan and politicians would largely step back (except when needed). This would keep excitement going and raise less suspicion about whether things are being manipulated by politicians... overall it would make involvement catchier.
- There would be lots of hands in instead of just one group, usually the arts or sports communities, doing all the work. Youth and retirees would help out too.
- During the Huntsville high school's career class, have different community groups present what they do and what their volunteer needs are.

Transportation

Desired outcome: People would use public transit over their personal car (014)

- Local businesses would be given the option to pay at the parking lot (encourage carpooling) or give free bus passes to employees, no more parking would be created downtown
- Establish a 'vehicle free downtown zone' (other cities have done this - it can be great for tourism)
- Make school buses more useful by offering connections so parents could take the bus to work or have kids dropped off at the hockey rink after school
- The municipality and school board need to work on their relationship

Desired outcome: Not driving when you don't need to

- We need to go after significant changes not just easy changes. Huntsville is a highly dispersed community and a more concentrated urban core is needed to reduce our carbon footprint and driving needs.
- Expand car share and bike share programs would be expanded
- Support people who are on the cutting edge and pilot projects. Change happens by example - if the mayor does it and he's a busy guy than people will think "I can do that too." The Town could try a three-month pilot project to really get transit going and get lots of people involved.
- We need holy-cow moments of big realizations along with noticing the little things we can do differently, like using a travel mug at Tim Horton's instead of a

disposable cup!

Wasteful habits

Desired outcome: Get water consumption under control

- Use 'grey water' recycling where appropriate and clean water only when necessary based on the reason for use, this will help create jobs and help Muskoka deal with the huge cost of current water & sewer services
- Understand who's responsible for managing water responsibly and have clear, concise, and agreed-upon responsibilities for use of water.
- Aggressive and smart leaders are needed that listen, make good judgments, and direct people. This requires attracting good people to be the town's leaders - the pay needs to be better in order to get a job well done. If leaders aren't doing a good job people should be able to recall their leaders, like in British Columbia and California

Desired outcome: Reduce use of packaging in consumer products

- Boxes could be removed in good condition at the store and returned to the manufacturer and outlaw plastic bags
- Change needs to be passed from person to person, e.g. lead by example and peer pressure. You need to be gentle and know that people and government will resist change. People need to understand how it impacts them down the road in the wallet. It helps if the message comes from your kids too.
- Use positive reinforcement to reward people who are taking simple steps to improve
- Influence needs to come from strong, brave people that show they care through their actions. Change starts from the ground-up when one or two people who first 'turn the light on' and then others will notice.

Urban design and planning

Desired outcome: Accept taller buildings in town that are over five stories and intelligently designed to fit in well with the natural landscape

- People agree that a denser urban core is desired but are dogmatic about the height of buildings, people need to have more open minds.
- Intelligent building design is needed that respects the need for sunlight, shade, views, and higher density. Ten-story buildings can easily fit into the natural landscape or be engineered to look no taller than 3 or 4 stories from street level.
- Collect a group of citizens and have them narrow down a list of what community Huntsville would like to emulate based on pictures / summaries of different communities from around the world
- Have 'field trips' for people to go see and experience different building designs.

Desired outcome: See and believe that change will not destroy the way of life that many residents currently enjoy

- Communicate what new concepts mean, like 'urban densification', so people see it's not in conflict with what they want their town to look like.
- The government saying, "you need to do this" doesn't work, change needs to come from the community. The public needs more knowledge about good things that are happening and how to get involved.

Desired outcome: Muskoka must realize it has a huge carbon footprint and decrease this impact on the environment

- Accept urban densification (not to the extreme like Toronto), keep investment in downtown and keep it dynamic. This means moving on from the 1900's look and becoming more modern.
- The 'edginess' of the younger generations must be embraced! People would expect some culture change and new ideas as the town becomes a 21st century city of the world instead of a 19th century status-quo community.
- Huntsville should 'benchmark' itself so it can see how well it stands up to other communities. Seek affiliation with other resource or tourism-based communities and learn from them (e.g. Santa Fe, New Mexico, Scandinavian communities, North California, Washington).
- People that can help get this change going are: the mayor and his office, which should use the Unity Plan as a game plan, and LEAF. The latter should be given more strength from council to drive the Unity Plan and keep council accountable on sustainability and resilience.
- Accept and acknowledge the import role of Muskoka's seasonal residents. Take responsibility for the full population since it imparts far different considerations than a small community of only 20,000.
- Your UW project should be spread to evaluate the rest of the Muskoka communities

Economic diversification

Desired outcome: Understand that we need to diversify the economy and be receptive to growth

- Maintain the economic diversity we already have, keep facilities here and support further diversification and expansion
- Create a positive business climate for investment and awareness of different economic options compatible with tourism and the environment, which go beyond tourism, service, and retirement industries.
- Concrete examples are needed so people can see the change, e.g. tour facilities to increase the community's awareness and stimulate more ideas.
- Make sure business development is compatible with the community while making sure businesses don't feel overburdened with red tape
- The municipal government needs to make the spark and get in touch with businesses and 'take the pulse' to help improve and expand.